

## Podcast of the Journal of Clinical Sleep Medicine

Stuart F. Quan, M.D.

*Division of Sleep Medicine, Harvard Medical School, Boston, MA  
Editor, 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.

At the current time, the mainstay of treatment for obstructive sleep apnea is CPAP delivered by either a nasal or nasal-oral interface. Although CPAP is highly efficacious, its effectiveness in clinical practice is less than optimum. In a number of studies, only about two out of every three patients who are prescribed CPAP were able to wear the device on a long-term basis. Alternatives to CPAP are therefore needed. This would be especially true for a pharmacologic treatment. The lead article in the issue of the *Journal* is entitled, "Pharmacological Treatment of Obstructive Sleep Apnea with a Combination of Pseudoephedrine and Domperidone." The authors of the paper are Drs. Larrain, Kapur, Gooley and Pope from Clinica Servet in Santiago, Chile and the University of Washington in Seattle, WA. This paper describes a non-randomized study of 23 patients with obstructive sleep apnea and a body-mass index less than 35 who were willing to undergo longitudinal assessments of oximetry, as well as receive treatment with Domperidone and Pseudoephedrine. Those patients with a body-mass index of less than 28 received a capsule containing 10 mg of Domperidone and 60 mg of Pseudoephedrine to be taken nightly. Those with a body-mass index between 28 and 30 also received one capsule with the option of having an extra capsule if there was no improvement in their snoring and those with a body-mass index of greater than 30 received two capsules. All of the subjects had episodes of witnessed apnea. There were five who had a diagnosis of sleep apnea by polysomnography and there were three who had previously used CPAP. All subjects underwent initial pulse oximetry and determination of their Epworth Sleepiness scale score. An oxygen desaturation index was calculated from the pulse oximetry data. The patients were then given the experimental drug combination. Follow-up oximetry was performed one to 21 months later. Most patients had a reduction in their Epworth Sleepiness scale score. Repeat oximetry showed that the oxygen desaturation index decreased from a mean of 41.5 to a mean of 25.9 at follow up. There were also significant declines in the percent time with oxygen saturations less than 90%. 17 of the 23 patients noted disappearance of snoring and witnessed apnea, and another two patients reported improvement in snoring and no apneic episodes. This study is obviously a prelimi-

nary evaluation of an innovative pharmacologic combination treatment. Nevertheless, it provides some hope that in some patients obstructive sleep apnea can be treated with medication. In an editorial following this paper, Dr. Kingman Strohl from the Veteran's Administration Medical Center in Cleveland, OH indicates that readers should note that Domperidone is not approved for use in the United States. He also advocates that the field needs to have more well-designed clinical trials to evaluate pharmacologic treatments.

The next paper I wish to highlight in this issue of the *Journal* is entitled, "Frequency of Sleep Apnea in Stroke and TIA Patients: A Meta-Analysis," by Drs. Johnson and Johnson from Baystate Medical Center in Springfield, MA and Massachusetts General Hospital in Boston, MA. Strokes are a devastating medical condition resulting in significant debilitating morbidity in many patients and leading significant healthcare costs. There is increasing evidence that there is a linkage between stroke and sleep apnea. However, the nature and extent of this association is still somewhat unclear. In this paper, the authors performed a systematic literature search using several well-known medical databases. They found 29 studies evaluating the relationship between stroke and/or transient ischemic attacks and sleep apnea. In all total, 2,343 patients were included. They found that the prevalence of stroke or transient ischemic attack in those patients with obstructive sleep apnea defined as an apnea-hypopnea index greater than five was 72%, whereas it was 38% when sleep apnea was defined with an apnea-hypopnea index greater than 20. Furthermore, central sleep apnea was present only in 7% of cases. In addition, the prevalence of sleep-disordered breathing was higher in men, those with recurrent strokes and those with strokes of unknown etiology. In contrast, sleep-disordered breathing was less frequently observed in those with cardioembolic strokes. The authors advocate screening for sleep-disordered breathing in all stroke patients because of this high association. In an editorial which follows this paper, Dr. Nathaniel Watson from the University of Washington points out that even though sleep-disordered breathing appears to increase the hospital length of stay and mortality following stroke and thus provides perhaps an opportunity to improve stroke outcomes with an intervention, use of continuous positive airway pressure in stroke patients is a challenging task. He suggests that given the difficulties with CPAP, in many patients alternative simple interventions such as raising the head of the bed, avoiding the supine position, keeping nasal passages clear and administering oxygen for hypoxemia should be considered.

The next paper I would like to highlight in this issue of the *Journal* is entitled, “Do Weather-related Ambient Atmospheric Pressure Changes Influence Sleep-disordered Breathing?” by Drs. Doherty, Youn, Haltiner and Watson from the University of Washington in Seattle, WA and Swedish Epilepsy Center in Seattle, WA. A number of studies have demonstrated that worsening of sleep-disordered breathing occurs with increases in altitude. However, there have not been any studies evaluating whether atmospheric pressure changes at a low altitude also affect sleep-disordered breathing. In this study, the atmospheric pressure at the time of polysomnography was related to severity of sleep-disordered breathing in 537 patients. The mean apnea-hypopnea index for all patients was 39.6 events/hour of total sleep time. The obstructive apnea index was 19.2 events/hour of total sleep time. The authors found that as atmospheric pressure declined, the obstructive apnea index increased. The obstructive apnea index in the first quartile of barometric pressure was 21.7 events/hour of total sleep time in comparison to 16.6 events/hour of total sleep time in the fourth quartile. The authors point out that the clinical implications of these findings are unclear given the modest effect observed. However, they may be a factor in determining the severity classification of patients with mild sleep apnea.

The final paper to be highlighted in this podcast is entitled, “The Effect of Pre-sleep Video Game-Playing on Adolescent Sleep,” by Drs. Weaver, Gradisar, Dohnt, Lovato and Douglas from Flinders University, Adelaide, South Australia. There has been increasing attention to the role of video game playing and screen time and their potential to adversely impact sleep, especially in children and adolescents. The generally accepted perception is that video game playing is a stimulating activity and therefore should negatively impact the ability to fall asleep. However, there is relatively little data in which this has been formally studied. In this small study, 13 male

adolescent students were asked to participate in video game playing prior to falling asleep and then one week later watch a unstimulating movie prior to falling asleep or perform both of these activities in the opposite order. Surprisingly, the effect of video game playing was found to be relatively mild. There was some increase in sleep latency and a reduction in subjective sleepiness. No changes in subsequent sleep architecture were observed. Therefore, data from this small study suggest that the effects of video game playing or perhaps even other stimulating activities on negatively impacting sleep may be smaller than what is generally accepted. Future studies need to be performed on a larger number of participants and also in a more diverse group of subjects in terms of age and gender to determine whether in fact video game playing significantly impacts subsequent sleep.

And finally, I would like to call the listeners’ attention to a Perspective written by Drs. Gupta, Sando, Parthasarathy and Quan entitled, “Information Technology Conduit as a Portal to Circumvent the Graveyard Shift.” The Perspective suggests that one possible mechanism to circumvent the problems related to nighttime work among healthcare professionals is to utilize telemedicine capabilities between healthcare institutions on opposite sides of the globe. In other words, x-ray examinations performed in one country during nighttime hours could be read by an alert physician around the world during daytime hours. The same might be applied to monitoring in electronic ICUs. Obviously, there are significant barriers to implementing such changes but the world is shrinking rapidly as a result of advanced technologies and medicine needs to follow.

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 articles summarized in this podcast, as well as other papers published in this issue of the *Journal*.