

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 in this issue is entitled, "Predictors of Response to a Nasal Respiratory Resistor Device and its Potential Mechanisms of Action for Treatment of Obstructive Sleep Apnea." The authors are Drs. Patel, Hwang, Masdeu, Chen, Rapoport and Ayappa from New York University School of Medicine in New York City and Universitat Autònoma Barcelona in Sabadell, Spain. The primary treatment for obstructive sleep apnea is positive airway pressure. Although efficacious if used on a nightly basis, only 50%-65% of patients prescribed nasal CPAP will use it on a long-term basis. Most patients discontinue its use because it is uncomfortable, they have difficulty sleeping with it, or they have other adverse affects. Therefore, alternative treatments for obstructive sleep apnea are urgently needed. Recently, use of expiratory positive airway pressure through disposable, one-way nasal valves has been promoted as a simple, well tolerated and easy to use method of treating some patients with obstructive sleep apnea. The treatment concept is not new, in that it was first described in 1983 in a small clinical study by Mahadevia and colleagues. Subsequently, other clinical reports failed to confirm the initial observations and this form of therapy was generally felt by most practitioners to be ineffective. More recent data, using disposable, one-way nasal valves which can be inserted into each nostril, have been more promising. However, in these more recent studies, some but not all participants benefit from therapy. The purpose of this current study was to exam characteristics which might predict the therapeutic response to these nasal valves and also to provide some information regarding how they might work.

In this study, 20 patients with an apnea-hypopnea index greater than five events per hour on polysomnography were recruited from a sleep-disorders center. They then underwent two more nights of polysomnography, one of which was with the nasal valve device and the other was with standard CPAP. On the CPAP night, interventions were made to measure the critical closing pressure. In addition, pulmonary function testing was performed during the daytime on these patients. The authors found that 19 of the 20 patients had a reduction in their respiratory-disturbance index. The mean RDI decreased from 49 to 27 with 10 patients having a 50% or more reduction in their

RDI and an absolute RDI with the device of less than 20 events per hour. Four participants were considered partial responders in that they had a greater than 40% reduction in RDI. The remaining participants were considered non-responders. Unfortunately, when potential predictors of therapeutic response were examined, age, body-mass index, baseline sleep apnea severity based on the RDI, passive closing pressure, none could be found. There was a trend for participants who had greater positionality of their obstructive sleep apnea to be responders with a trend for the ratio of supine to lateral RDI at baseline to be higher in the group with a therapeutically acceptable response in comparison to non-responders.

Further examination of the data suggested that improvement in sleep apnea was associated with generation and maintenance of an elevated end expiratory pressure. The authors suggest that this observation is consistent with two different mechanisms of action for the expiratory nasal valves. The first would be dilatation of the airway by pressure generated during expiration with a carry over of the enlargement into inspiration. The second would be production of lung hyperinflation by the elevated expiratory airway pressures resulting in reduced upper airway collapsibility from increased tracheal traction. The authors suggest that these nasal valves may be an important therapeutic option in a subset of patients with obstructive sleep apnea.

In an accompanying editorial to the paper by Patel, et al., Drs. Owens, Wellman and Malhotra from Brigham & Women's Hospital and Harvard Medical School in Boston, MA write that there is no clear *a priori* evidence suggesting which patients will benefit from expiratory nasal valves. They propose that positive airway pressure therapy in the form of CPAP remains the treatment of choice for obstructive sleep apnea. However, if CPAP will not or cannot be tolerated, expiratory one-way nasal valves can be offered as a therapeutic option.

The next paper to be highlighted in this podcast is entitled, "Evaluation Of Sleep Disorders in the Primary Care Setting: History Taking Compared to Questionnaires." The authors are Drs. Senthilvel, Auckley and Dasarathy from Metro Health Medical Center and Case-Western Reserve University in Cleveland, OH.

Sleep disorders are very common in modern society and many epidemiologic studies report that symptoms of insomnia are present in 30%-33% of the general population, with 10% of the population having chronic symptoms. In addition, obstructive sleep apnea has been found in 2%-4% of middle-aged women and men, respectively, and restless-leg syndrome has a prevalence of approximately 10% in the general population.

Thus, although sleep disorders are highly prevalent, various studies suggest that sleep complaints are not solicited or adequately treated by primary care physicians. In this study, the Cleveland Sleep Habits Questionnaire, Berlin Questionnaire, Epworth Sleepiness Scale and the STOP Questionnaire were administered to new patients in a primary care clinic. Use of the questionnaires suggested that a high proportion of the patients had elevated risk for a sleep disorder. In comparison, review of the patient encounters found that physicians documented a sleep disorder in a much smaller proportion of these patients. The authors suggest that symptoms of sleep disorders are common in a primary care setting, but physicians do not routinely screen for them. However, use of selected questionnaires may be one means by which patients at risk could be quickly screened for common sleep complaints.

The next study to be highlighted in this podcast is entitled, "A Multi-Component Cognitive Behavioral Intervention for Sleep Disturbance in Veterans with PTSD: A Pilot Study," by Drs. Ulmer, Edinger and Calhoun from Duke University Medical Center and the Durham Veteran's Affairs Medical Center in Durham, NC.

With ongoing military conflicts in both Iraq and Afghanistan, post-traumatic stress disorder is a common finding in veterans returning from the war zone. Recent studies suggest that disturbed sleep is a common complaint in those with PTSD. Whereas standard cognitive behavioral treatment for PTSD may improve these symptoms, many of these patients still continue to have problems with their sleep. The current study enrolled 22 veterans meeting criteria for PTSD and assigned 12 to an intervention condition, which included cognitive behavioral therapy for insomnia and image rehearsal therapy. Nine subjects were assigned to a usual care group, which pro-

vided various sleep hypnotics, anti-depressants, anxiolytics and mood stabilizing medications as prescribed by their primary care physician. Nine of the veterans assigned to the intervention condition completed the study and all nine of the control group completed follow-up assessment. The results of this pilot study indicated that there were medium to large treatment effect sizes for sleep-onset latency and wake after sleep onset, as measured by sleep diaries. In addition, large effect sizes were noted for insomnia severity, sleep quality and PTSD symptoms. The authors suggest that combined intervention, as described, is a promising treatment modality for both improving sleep and reducing PTSD symptoms in veterans with PTSD. However, given the size of this trial, larger studies are needed.

Finally, I would like to call the readership's attention to a review article in this issue of the *Journal* entitled, "Autonomic Activation in Insomnia: The Case for Acupuncture." A large number of persons in the general population use complimentary and alternative medication modalities for treatment of medical illnesses, including problems with their sleep. Acupuncture is one such treatment that has been used for the treatment of insomnia. The review article in this issue of the *Journal* discusses mechanisms by which acupuncture may benefit individuals with insomnia and provides several cases of its use for this condition. Given that insomnia is a highly prevalent condition and patients may ask questions to sleep practitioners about the effectiveness of acupuncture, this article may be useful to many sleep clinicians.

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*.