

## 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.

There are 2 lead articles in this issue of the Journal. Both are focused on the subject of adaptive servoventilation in the treatment of patients with sleep apnea associated with the use of opioid therapy.

The first article is authored by Dr. Javaheri and colleagues from Sleep Care Diagnostics, The University of Cincinnati and Christ Hospital in Cincinnati, OH. The paper reports on 5 consecutive patients seen in their sleep disorders clinic over an 18 month period who were using opioids chronically for pain. All patients had severe sleep apnea, with an average apnea-hypopnea index of 70 events per hour. The apnea-hypopnea index included obstructive, central and hypopneic events. With CPAP therapy there was a decrease in the apnea-hypopnea index to 55 events per hour of total sleep time, with a decrease in obstructive apneas and hypopneas but an increase in central events. Use of adaptive servoventilation resulted in an elimination of all these central events. However, there was some persistence of hypopneas such that the apnea-hypopnea index was still slightly elevated but significantly improved at 20 events per hour. The authors suggest that adaptive servoventilation is possibly an effective treatment of sleep apnea in patients who are taking opioids.

The other lead article in this issue of the journal also is focused on adaptive servoventilation in patients taking chronic opioid therapy. This paper, by Dr. Robert Farney and colleagues from Intermountain Sleep Disorders Center and LDS Hospital in Salt Lake City, UT, was a retrospective analysis of 22 consecutive patients referred for evaluation in their sleep disorders center. These patients had polysomnography with an apnea-hypopnea index at baseline of 66.6 events per hour of total sleep time, 70.1 events per hour of total sleep time on CPAP and 54.2 events per hour of total sleep time on adaptive servoventilation. In contrast to the paper by Javaheri and colleagues, the authors felt that adaptive servoventilation was not effective therapy for the treatment of sleep apnea in patients who are taking chronic opioids.

Both of these papers were the subject of an editorial written by Dr. Timothy Morgenthaler from the Mayo Clinic in Rochester, MN. In his editorial, Dr. Morgenthaler writes that the 2

studies highlight several points related to chronic opioid use and sleep apnea. First, it is apparent that chronic opioid use is associated with complex sleep apnea. Second, chronic opioid users tend to have disproportionately low arousal indexes and high sleep efficiency relative to the degree of measured sleep disordered breathing. Third, CPAP alone is ineffective therapy for the treatment of sleep-disordered breathing in these patients due to the persistence or emergence of centrally mediated periodic or ataxic central events. And fourth, at least in some patients adaptive servoventilation was more effective in an acute setting than CPAP. The editorial emphasizes that sleep disordered breathing in chronic opioid users represents a form of complex sleep apnea in which there are both elements of upper airway obstruction and central sleep apnea present simultaneously. He notes that this type of apnea may be suggested by polysomnographic tracings before application of CPAP, which show an extremely periodic nature of the apneas and hypopneas and that the periodic breathing appears to be characterized by a shorter period than that seen in classic Cheyne-Stokes ventilation. Despite the ineffectiveness of adaptive servoventilation in the patients studied by Dr. Farney and colleagues, Dr. Morgenthaler suggests that those who do not respond to CPAP and have complex sleep apnea related to opioid use, be given a trial of adaptive servoventilation.

Another article which I wish to highlight in this issue of the Journal is entitled, "Persistence of Obstructive Sleep Apnea After Surgical Weight Loss" by Christopher J. Lettieri from Walter Reed Army Medical Center in Washington, D.C. and the Uniformed Services University of the Health Sciences in Bethesda, MD. In this study, 24 individuals who were undergoing bariatric surgery were studied with polysomnography before and one year following the operation. At baseline, all patients had severe obstructive sleep apnea with an average apnea-hypopnea index of 47.9 events per hour of total sleep time. In addition, all of the patients were severely obese with an average body mass index of 51 kg per meter squared. One year after surgery, there was significant weight loss with a reduction in the body mass index to 32.1 kg per meter squared. The apnea-hypopnea index decreased to 24.5 events per hour of total sleep time but, more importantly, only 1 patient had complete resolution of their sleep apnea. The most important predictor of a high apnea-hypopnea index one year post-operatively was a high apnea-hypopnea index at baseline. Twenty of the 23 patients who had persistent sleep apnea at follow-up underwent a CPAP titration

but only 6 individuals were compliant with CPAP on a long-term basis. The authors conclude that, although surgical weight loss reduces both the body-mass index and the apnea-hypopnea index, most patients have significant residual sleep apnea one year after surgery.

In a companion editorial, Drs. Heidi Marien & Daniel Rodenstein from the Universite Catholique de Louvain in Brussels, Belgium, comment that the article by Lettieri may be subject to some selection bias in that the patient population only represents 20 percent of those undergoing bariatric surgery at their Center. However, they do agree that patients undergoing bariatric surgery and who have sleep apnea should be advised to continue CPAP therapy until a new evaluation is performed at follow-up to determine if significant residual sleep apnea is present.

Finally, I wish to call the listener's attention to a case report published in the Journal entitled, "Adverse Affects of Ropinirole-Treated Restless Leg Syndrome During Smoking Cessation" by Timothy M. Juergens at the University of Wisconsin in Madison, WI. In this case report, a 54 year-old woman with restless leg syndrome was being treated with ropinirole and had

been stable on this medication for 2 years at a dose of 1 mg per day. She then quit smoking and, 4 days afterwards, began having profuse nocturnal diaphoresis and disturbed sleep with increased awakenings for several nights. She then decreased her ropinirole to 0.5 mg and had cessation of her symptoms. In the discussion, it is noted that smoking induces the activity of cytochrome P450 isozymes, CYP1A2. Because ropinirole is a CYP1A2 substrate, smokers may require higher doses of ropinirole to achieve a clinical response. Smoking cessation would then lead to a decrease in the metabolism of ropinirole and symptoms of an overdose. It should be pointed out that this would occur only in patients who cease use of any nicotine product. Use of nicotine replacement to assist in smoking cessation would continue to induce CYP1A2 in the same way that nicotine does it directly from smoking. The case highlights the importance of reviewing a patient's entire drug regimen when adding or stopping a medication.

This concludes the regular podcast of the August 15, 2008, issue of the Journal of Clinical Sleep Medicine. The listener is encouraged to read the articles summarized in their entirety, as well as other papers published in this issue of the Journal.