

Podcast of the *Journal of Clinical Sleep Medicine*

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Welcome to the final, regular podcast of the *Journal of Clinical Sleep Medicine*. I am Dr. Stuart Quan, editor of the *Journal*. These podcasts have been 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 first paper to be discussed in this podcast is entitled, "Auto-adjusting Positive Airway Pressure Treatment for Sleep Apnea Diagnosed by Home Sleep Testing," by Richard Barry and Peruvemba Sriram from the Malcom Randall V.A. Medical Center, University of Florida, Gainesville, FL. Home sleep testing is increasingly used as the primary diagnostic procedure to confirm the presence of obstructive sleep apnea in individuals who have a high probability of this condition. Continuous positive airway pressure is still the mainline treatment for patients with obstructive sleep apnea. Increasingly, insurance carriers are mandating that individuals who are diagnosed with obstructive sleep apnea be fitted with an auto-titrating continuous positive airway pressure device instead of being sent to the sleep laboratory for a manual titration of continuous positive airway pressure. However, this treatment algorithm has yet to be rigorously tested. In this study, 156 patients who were diagnosed with obstructive sleep apnea by home sleep testing and who had an apnea-hypopnea index greater than or equal to 10 events per hour were randomized to either an auto-titrating positive airway pressure device or a CPAP titration in the laboratory followed by treatment with a fixed-pressure CPAP device. The patients were then evaluated after six weeks of treatment to determine their compliance with CPAP, their quality of life, their sleepiness and the pressures delivered by their devices.

The results of the study showed that the 90th percentile auto-titrating pressure and the level of fixed pressure CPAP were similar between groups (10.8 ± 3.1 versus 11.7 ± 2.5 cm of water). In addition, the average nightly usage also did not differ between groups (APAP 4.45 ± 2.3 versus CPAP 4.0 ± 2.3 hours). Furthermore, improvements in the Epworth Sleepiness Scale and the Functional Outcomes of Sleep Questionnaire were similar between the two groups. Patients in the APAP group were slightly more satisfied at the conclusion of the study than individuals in the CPAP group but this difference was small and likely not clinically significant. The authors conclude that use of APAP treatment in patients diagnosed with obstructive sleep apnea after home sleep testing can result in equivalent positive airway pressure adherence and improvement in symptoms

compared to an approach that requires individuals to be titrated to CPAP in the sleep laboratory.

As noted by the authors themselves, as well as in an accompanying editorial, these results while highly suggestive that this diagnosis and treatment algorithm can be used effectively, are not necessarily generalizable. The patient population was drawn entirely from a single Veterans Administration medical center and thus the availability of durable medical equipment and qualified respiratory therapists may not be the same as if this were to occur in a private setting. These results need to be confirmed by additional studies performed in other healthcare settings.

The next study to be summarized in this podcast is entitled, "Obstructive Sleep Apnea and Mandibular Advancement Splints: Occlusal Effects and Progression of Changes Associated with a Decade of Treatment," by Benjamin T. Pliska and colleagues from the Department of Oral Health Sciences, Faculty of Dentistry, University of British Columbia, Vancouver, B.C. Mandibular advancement splints or oral appliances are being increasingly used for the treatment of obstructive sleep apnea, especially with mild to moderate disease as determined by the apnea-hypopnea index. It is known that the use of such appliances may result in some changes in pre-existing dentition. However, these changes over a long period of time have yet to be documented. In this study, 77 patients who were being treated for their obstructive sleep apnea with mandibular advancement splints and who had periodic dental casts made as part of their treatment plan had these casts retrospectively analyzed to determine whether there were changes in their dentition over the course of their treatment. The mean age of the patients was 47.5 ± 10.2 years and the mean duration of treatment or follow up was 11.1 ± 2.8 years. Their average BMI was 29.4 ± 7.2 kg per meter squared and their average apnea-hypopnea index was 29.8 ± 16.9 with a range between 2.4 and 77.4 events per hour. The results of the analysis showed that there was significant change in dentition. Over bite, over jet and mandibular crowding were all reduced. There was also a significant increase in mandibular inter-canine and inter-molar width, as well as an incidence of anterior cross-bite and posterior open-bite. Changes in overbite and mandibular inter-molar distance decreased with time. However, over jet, mandibular inter-canine distance and lower-arch crowding all decreased continuously at a constant rate. The authors indicate that clinicians need to be cognizant of these findings, as well as discuss their implications with patients who are being prescribed a mandibular advancement splint or an oral appliance.

In an accompanying editorial by Joachim Ngiam and Peter Cistulli from Royal Northshore Hospital, St. Leonard's, New South Wales, Australia, these authors emphasize that there is a complex relationship between the benefits of mandibular advancement splints, their dental side effects and the level of mandibular protrusion and that this relationship may ultimately affect adherence. Furthermore, they advocate for greater patient education, informed consent and systematic protocols for the long-term management of patients receiving mandibular advancement splints as part of chronic disease management, as well as an important role of a sleep medicine dentist for the treatment of these patients.

The final paper to be discussed in this podcast is entitled, "Sleep Disturbances and Nocturnal Symptoms: Relationships with Quality of Life in a Population-Based Sample of Women with Interstitial Cystitis/Bladder-Pain Syndrome," by Wendy M. Troxel and colleagues from the Rand Corporation, Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA, and the Department of Urology, University of Michigan, Ann Arbor, MI. Interstitial cystitis/bladder-pain syndrome is a chronic condition characterized by urinary urgency, frequency, pelvic pain and nocturia that disproportionately affects women. Its impact on sleep, as well as quality of life, in those affected have not been completely characterized in a community sample. In this study, 3,397 women who were a subset of the Rand Interstitial Cystitis Epidemiology Study answered questions regarding their sleep duration and sleep quality, as well as questionnaires related to general health-related quality of life and sexual function, a bladder-symptom impact scale

and a depression instrument. The results of this study showed that 61% of the survey population slept for six hours or less with 50% of them have fairly bad or very bad sleep quality. Fifty-nine percent had trouble sleeping because of the need to urinate more than three times week and 44% had trouble sleeping due to urgency. In separate, multiple linear regression models predicting quality of life, sleep duration, sleep quality and bladder-symptom impact all were significant in predicting physical health, mental health and sexual function. In another multiple, linear regression model predicting quality of life, symptom duration and sleep quality were significant predictors after controlling for the bladder-symptom impact scale. These data indicate that poor sleep quality and short sleep duration, as well as bladder symptoms themselves, have a significant impact on quality of life in this population of patients with interstitial cystitis/bladder-pain syndrome. However, the reader should be cautioned that this was a cross-sectional study and that causality cannot be inferred. Nevertheless, the results do suggest that measures to improve sleep in this population may result in an improvement in quality of life.

This concludes the final 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*. In closing, I would like to thank our *Journal's* staff as well as Ms. Cris Ballard, our medical transcriptionist for their efforts in bringing these podcasts to you.