

## 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 first paper to be discussed is entitled, "Impact of Brief Cognitive Behavioral Treatment for Insomnia on Healthcare Utilization and Costs," by Dr. Christina McCrae and colleagues from the Department of Clinical & Health Psychology University of Florida, Gainesville, FL, VISN for Mental Illness Research, Education & Clinical Center VA Pittsburgh Healthcare System, Pittsburgh, PA, and the Department of Psychology, Drexel University, Philadelphia, PA. A number of epidemiologic studies have documented the prevalence of chronic insomnia as between eight and ten percent of the adult population in the United States. This burden of disease translates into \$77 to \$92 billion of estimated total treatment costs and over \$100 billion of annual costs when issues such as lost productivity, accidents and increased prevalence of other medical problems are factored in. A number of studies have demonstrated that cognitive behavioral therapy provides the best initial treatment approach for individuals with chronic insomnia, resulting in higher response rates and greater duration of efficacy than pharmacotherapy. In this study, the authors conducted a retrospective review of the medical records of 84 patients who underwent a brief form of cognitive behavioral therapy in order to determine whether or not this intervention had a significant impact on healthcare utilization and costs. The cognitive behavioral therapy intervention consisted of four to six sessions delivered by clinical psychology graduate students and post-doctoral interns. All therapy was supervised by a licensed, clinical psychologist who was certified in behavioral sleep medicine. Strategies covered during these sessions consisted of sleep hygiene, implementation of sleep restriction, relaxation techniques, as well as cognitive therapy to focus on dysfunctional beliefs and concerns related to sleep. Of the 84 charts that were reviewed, 47 patients were considered "completers" in that they attended three or more sessions. In addition, the completers were further classified as responders or non-responders to therapy depending on whether or not they had an improvement in their onset latency, waking after sleep onset and sleep efficiency. Comparisons were made between those who completed therapy and those who did not, as well as between treatment responders and non-completers.

Of those who completed therapy, there was a significant decrease in healthcare utilization. Number of office visits declined from 3.25 over six months to 2.69 in completers. In comparison, non-completers had no change in their office visit frequency. The authors also analyzed the change in the chronic disease score. The chronic disease score is a medication-based algorithm that estimates healthcare costs. In completers, the CDS score decreased from \$572.47 to \$491.30. In comparison, for non-completers, the initial CDS score was \$683.28 with a non-significant decline to \$595.14. Treatment responders also had a decline in their CDS score from \$627.73 to \$586.66. These data indicate that brief cognitive behavioral therapy interventions can reduce healthcare utilization and costs. A major limitation of the study was the small sample size and thus additional data need to be obtained from larger populations.

The next paper to be discussed in this podcast is entitled, "Obstructive Sleep Apnea and Fatigue in Patients with Multiple Sclerosis," by Dr. Tiffany J. Braley and colleagues from the Department of Neurology, Multiple Sclerosis Center and Sleep Disorders Center University of Michigan, Ann Arbor, MI. Multiple sclerosis is a chronic, debilitating disease that is frequently associated with fatigue. It is estimated that 90% of multiple sclerosis patients will complain of fatigue at some point during their disease course. It is unclear how common obstructive sleep apnea is within the population of multiple sclerosis patients and whether it exacerbates the complaint of fatigue in these patients. This study was performed to determine the prevalence of obstructive sleep apnea and sleep apnea risk among multiple sclerosis patients and to assess the associations between fatigue severity, obstructive sleep apnea, obstructive sleep apnea risk and sleep quality among those with multiple sclerosis.

Between July, 2012, and March, 2013, 203 adult patients attending the University of Michigan Multiple Sclerosis Clinic completed a sleep survey that included the Epworth Sleepiness Scale, the Fatigue-Severity Scale, the Stop-Bang Questionnaire and the Insomnia Severity Index. Associations between sleepiness, fatigue scores, insomnia, sleep apnea risk, presence of sleep apnea and sleep symptoms was ascertained. Data was available in 195 patients. 41 of these patients or 21% had a formal diagnosis of obstructive sleep apnea. 110 or 56% of the patients had a Stop-Bang score greater than or equal to three, which indicated an elevated risk for obstructive sleep apnea. In regression analyses, higher fatigue scores were related to higher scores on the Stop-Bang Questionnaire, greater number of nocturnal symptoms and greater amounts of disability. Furthermore, diagnosis of obstructive sleep apnea and number

of nocturnal symptoms also strongly predicted higher scores on the Insomnia Severity Index. These results indicate that sleep disturbances and obstructive sleep apnea are highly prevalent among individuals with multiple sclerosis. Additionally, sleep disturbances and in particular obstructive sleep apnea may be under recognized in this population and could be contributing factors to persistent fatigue in these individuals.

The final study to be summarized in this podcast is entitled, "Depression May Reduce Adherence during CPAP Titration Trial," by Dr. Mandy Law and colleagues from Alfred Hospital, Prahran, Melbourne, Victoria, Australia, and Monash University, Clayton, Victoria, Australia. Some studies have demonstrated that depression is a risk factor for medication non-compliance. The purpose of this study was to determine whether depression may be a contributing factor to increased non-adherence to CPAP in patients with obstructive sleep apnea. For this investigation, records were reviewed of 240 patients in whom the diagnosis of sleep apnea was made by either attended polysomnography or unattended home oximetry. Home oximetry was used in those cases where there was a high pre-test probability for obstructive sleep apnea and a low likelihood of other pathology. 31% of the patients underwent polysomnography and their mean apnea-hypopnea index was 25.5. For those who underwent overnight oximetry, the oxygen desaturation index had a mean value of 34. These patients then underwent a one-week trial of auto-PAP. The data was downloaded for analysis after the trial. They also completed the Hospital Anxiety and Depression scale, which is a self-completion questionnaire used as a screening instrument for depression and anxiety. For all patients, the mean auto-PAP use was 4.5 hours per night. Multiple regression analysis revealed that the presence of depression and lower 95<sup>th</sup> percentile pressures predicted less auto-PAP use. The finding that lower CPAP pressures associated with less adherence was surprising. The authors speculated that patients who required lower pressures also had milder obstructive sleep apnea and this may have negatively impacted their device use. Nevertheless, it appears that depression is a risk factor for poor adherence to

auto-CPAP and perhaps fixed-pressure CPAP. Further studies are needed to determine whether lower airway pressure also is a predictive factor for poor CPAP adherence or whether this is just related to severity of obstructive sleep apnea, as suggested by the authors.

I would also like to call the listener's attention to a perspective in this issue entitled, "Frequency and Accuracy of 'RERA' and 'RDI' Terms in the *Journal of Clinical Sleep Medicine* From 2006-1012." In this perspective, Dr. Barry Krakow and colleagues from the Sleep & Human Health Institute and the Miami Sleep Arts & Sciences Limited in Albuquerque, NM, and the University of Rochester, Rochester, NY, point out the inconsistencies in application of the terms RERA and RDI in scientific papers published in the *Journal of Clinical Sleep Medicine*. The author takes the position that RERAs are scientifically valid and should be scored instead of being an optional scoring metric in the current scoring manual. A commentary to Dr. Krakow and colleagues editorial was written by Dr. Nancy Collup from Emory University in Atlanta, GA. Dr. Collup noted that the most recent revision of the scoring manual recommends that arousals be utilized in the definition of hypopneas and that if this latter definition is used, there would be very little need to score RERAs as they would be included in the scoring of hypopneas. She agreed with Dr. Krakow that the field needs to be consistent in the use of terminology.

Finally, the listeners should note that there is a very useful review article on oral appliances entitled, "Oral Appliance Treatment for Obstructive Sleep Apnea: An Update," by Dr. Kate Sutherland and colleagues. This internationally authored paper from the Oral Appliance Network on Global Effectiveness provides an extensive review of current state-of-the-art in the use of oral appliances to treat obstructive sleep apnea.

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*.