

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 in this podcast is entitled, "Impact of CPAP on Activity Patterns and Diet in Patients with Obstructive Sleep Apnea," by Dr. Salma Batool-Anwar and colleagues from the University of Arizona College of Medicine, Tucson, AZ, Brigham & Women's Hospital, Boston, MA, Arizona State University College of Nursing and Health Innovation, Phoenix, AZ, and St. Mary Medical Center, Walla Walla, WA. In a paper recently published in the *Journal*, investigators from the APPLES Study demonstrated that participants who were randomized to CPAP gained weight over the course of the six-month study. Furthermore, it was shown that those who were most compliant with CPAP gained the most weight. Changes in weight are a reflection of the net caloric balance between intake and expenditure of calories. It is unclear from the previous study in APPLES whether the increase in weight experienced by those on CPAP was a reflection of changes in caloric intake, caloric expenditures or a combination of both. In an attempt to answer this question, a subset of participants who participated in APPLES completed detailed caloric and physical-activity questionnaires at the beginning of the study and after four months to determine whether there were any changes in either of these two parameters as a result of using CPAP.

There were 231 participants who had data regarding physical activity and diet at baseline and after four months treatment with CPAP. 117 of these participants had been randomized to CPAP and 114 to sham. The mean apnea-hypopnea index at baseline was 44 events/hour and was comparable between groups. In addition, 61% of the subjects had severe obstructive sleep apnea, with an apnea-hypopnea index of greater than 30. The mean weight at baseline for all participants was 98kg. CPAP adherence in the sham group was 2.6 and 2.9 hours in men and women, respectively. For the CPAP group, it was 4.0 and 3.5 hours, respectively. After four months, there were no significant changes in either the CPAP or sham groups with respect to diet and exercise with the following exceptions. Those in the sham group had a significant decrease in cholesterol, fats, and saturated fats after four months. However, there were no changes in diet in the CPAP group. With respect to energy expenditures related to physical activity, there were no changes except for

a slight decrease in recreational activity among men in the sham group and a slight increase in recreational activity among women in the CPAP group. The authors concluded that, except for a very small increase in recreational activity in women, sleep apnea patients treated with CPAP do not substantially change their diets or physical-activity habits after treatment. These data suggest that the weight gain experienced by CPAP users after treatment is related to a decrease in energy expenditures occurring as a result of CPAP treatment without a corresponding decrease in energy intake or increase in physical activity. Future studies are needed to understand the association between CPAP treatment and lack of changes in lifestyle.

The next study to be discussed in this podcast is entitled, "Effect of Sleep Apnea Hypopnea Syndrome On Lipid Profile: A Meta Regression Analysis," by Dr. Rashid Nadeem and colleagues from the Rosalind Franklin University of Medicine and Science, Chicago Medical School, North Chicago, IL, Department of Cardiology James A. Lovell Federal Healthcare Center, North Chicago, IL, Rematul lil Alameen Institute of Cardiology, Lahore, Pakistan, New York University, New York, NY, and University of Karachi, Karachi, Pakistan. A number of studies have linked sleep apnea to dyslipidemia. Dyslipidemia, if related to obstructive sleep apnea, could be one explanatory mechanism by which obstructive sleep apnea results in increased cardiovascular morbidity and mortality. However, it is not clear whether obstructive sleep apnea is a risk factor for dyslipidemia. Results of studies have been conflicting. The current study was an attempt to provide greater clarity on this issue by performing a meta regression analysis of 64 papers published evaluating the association between obstructive sleep apnea and dyslipidemia.

Within the 64 studies, there were 107 data sets because some studies utilized more than one data set. This resulted in 18,116 patients who were pooled for the meta analysis. The results showed that total cholesterol, HDL cholesterol, and triglycerides were adversely impacted by obstructive sleep apnea. In addition, HDL and triglycerides were adversely impacted by severity of sleep apnea. Thus, it appears that obstructive sleep apnea adversely affects lipid profiles and this may, in part, explain why individuals with obstructive sleep apnea have a higher incidence of cardiovascular morbidity and mortality.

The third paper to be discussed in this podcast is entitled, "The Impact of Obstructive Sleep Apnea on Motor Skill Acquisition and Consolidation," by Shane Landry and colleagues from the School of Psychological Sciences, Faculty of Medicine, Nursing and Health Sciences Monash University, Melbourne

Victoria, Australia, and Lafayette Specialists Center, Victoria, Australia. A number of studies have implicated obstructive sleep apnea as causing deficits in neurocognitive function, including motor skill acquisition. Previous studies have demonstrated that memory and motor skill acquisition are consolidated after an overnight sleep. In this study, both of these functions were tested in a group of patients with obstructive sleep apnea and a group of normal controls.

In the study were 12 obstructive sleep apnea patients who performed the sequential finger tapping task. This task requires a participant to type a five-digit sequence using a standard computer keyboard with their non-dominant hand. They were told to reproduce the sequence as quickly and as accurately as possible during a 30-second trial period. The trial period was then repeated 12 times. 12 normal controls were also administered this task. The participants were asked to do this two times. The first was between 21:30 and 22:30 hours on the night prior to a diagnostic sleep study. The second was in the morning after the sleep study between 6:30 and 7:00. The results of the study

showed that control participants and sleep apnea participants increased their performance over the 12 trials administered in the evening. There were no differences between the two groups at that time. However, the control participants had a significant post-sleep improvement in performance which was not observed in those with obstructive sleep apnea. These data indicate that daytime and practice related acquisition of motor skills is largely intact in obstructive sleep apnea patients but that there's a marked impairment in the consolidation phase that is evident following a period of sleep. These data have implications for impairment in performance frequently observed in patients with obstructive sleep apnea. However, it is unclear as to the minimum amount of sleep disruption or apnea required to elicit this degree of impairment.

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*.