

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 of the *Journal* is entitled, "Assessment of Multiple Health Risks in a Single Obstructive Sleep Apnea Population," by Dr. David Hudgel and colleagues from the Sleep Disorders Center at the University of Manitoba in Winnipeg, Manitoba Canada and the Sleep Disorders and Research Center at Henry Ford Hospital in Detroit, MI. A number of population-based and clinic-based studies have documented an increased rate of death and an increased number of cardiovascular events in persons with obstructive sleep apnea. However, in all of these studies, obstructive sleep apnea was analyzed as a predictor of individual health outcomes and not several health outcomes simultaneously. In this study, the rates of all-cause mortality, myocardial infarction, stroke and pulmonary embolus were simultaneously analyzed as a function of obstructive sleep apnea severity and other possible predicting factors over an eight year period of time. In statistical models adjusting for a number of covariates, the principal factors associated with all-cause mortality, myocardial infarction, stroke and pulmonary embolus were older age, male gender and a history of cardiovascular diseases or cardiovascular procedures. Obstructive sleep apnea was not one of these factors in the overall models. However, in subgroup analysis, severe obstructive sleep apnea indicated by an apnea-hypopnea index greater than 30 was an independent predictor of mortality in males and in those persons who were less than 50 years old. In addition, CPAP use of more than four hours per night was associated with lower mortality rates in males and in those over the age of 50 years old with severe obstructive sleep apnea. There are several important implications from these findings. First, several cardiovascular risk factors were more important in determining overall mortality and cardiovascular risks than obstructive sleep apnea. Second, the finding that severe obstructive sleep apnea was a risk factor for mortality in males and in younger persons is consistent with data recently published by the Sleep Heart Health Study indicating an increased risk in those individuals as well. Third, the data are also consistent with previously published population studies suggesting that mild to moderate sleep apnea does not confer increased cardiovascular risk. Finally, the data provides some evidence that use of con-

tinuous positive airway pressure mitigates cardiovascular risks from obstructive sleep apnea.

The next paper to be reviewed in this podcast is entitled, "Sleep Disordered Breathing in Patients with Acute Coronary Syndromes," by Dr. Sophia Schiza and colleagues from the Sleep Disorders Unit at the University of Crete, Department of Cardiology, University General Hospital, Heraklion, Crete, and the Sleep Disorders Unit, 401 General Army Hospital, Athens, Greece. It is generally well known that sleep disordered breathing is commonly observed amongst patients who are admitted to the intensive care unit with an acute myocardial infarction. However, it is unclear whether the severity of the sleep disordered breathing during an acute myocardial infarction is indicative sleep disordered breathing after recovery. In this study, 52 patients who were admitted to the coronary care unit with first-ever acute coronary syndrome and a left ventricular ejection fraction over 40% had a polysomnogram performed on the third day, after their acute event. Obstructive sleep apnea, defined as an apnea-hypopnea index more than 10 events per hour, were identified in 32 of these patients. The authors found that the apnea-hypopnea index declined from an average of 19.7 events per hour of total sleep time on the initial study to 14.2 events per hour one month later and then after six months to 8.1 events per hour of total sleep time. It is also notable that the patients' sleep efficiency increased from 62.3% on the first polysomnogram to 75.9% on the second study and then to 83.8% on the final study six months later. The authors conclude that although a relatively high prevalence of sleep disordered breathing was noted amongst patients admitted with acute-coronary syndrome, this did not persist and there was a significant decrease in the average apnea-hypopnea index six months after admission. However, inasmuch as the sleep efficiency appeared to be inversely related to the decline in the apnea-hypopnea index, these observations must be interpreted cautiously. Nevertheless, clinicians should be aware that if a sleep study is obtained during an acute-coronary syndrome admission, the results may not be indicative of sleep apnea severity several months after discharge.

Finally, I would like to comment on two seemingly disparate papers on the use of positive airway pressure to treat sleep apnea. In the first study by Dr. Carol Marcus and colleagues from Children's Hospital of Philadelphia in Philadelphia, PA, and Denver National Health in Denver, CO, 56 children and adolescents were enrolled in a randomized, double-blinded clinical trial of continuous positive airway pressure or bi-level positive airway pressure with pressure-release technology for three months. The goal of the study

was to determine whether the bi-level modality would have better adherence than standard CPAP. The authors found that there were no differences between the two modalities in the number of nights used or the minutes of device usage per night. The apnea-hypopnea index did decrease similarly on CPAP versus bi-level. There were also reductions in the Epworth Sleepiness Scale scores.

In the second study, Dr. Eric Powell and associates from the Sleep Therapy and Research Center in San Antonio, TX, Mayo Clinic in Rochester, MN, Clayton Sleep Institute in St. Louis, MO and Brigham and Women's Hospital in Boston, MA, enrolled 41 subjects into a parallel group, randomized, double-blind controlled study of an auto bi-level, positive airway pressure device or standard CPAP. All patients were those who had an initially poor CPAP experience. Similar to the pediatric study which was previously discussed, there was no difference in the proportion of subjects who were compliant between the

auto bi-level and the CPAP groups. As written in an accompanying editorial by several colleagues and myself to both papers, the results of these two studies emphasize that newer methods of delivering positive airway pressure for the treatment of obstructive sleep apnea have not been shown on average to improve compliance although it is possible that an individual patient might find one method of receiving positive airway pressure therapy better than another. Furthermore, the two studies remind us that despite the efficacy of positive airway pressure for the treatment of obstructive sleep apnea, many patients are not able to tolerate this mode of therapy and thus new therapeutic approaches need to be developed.

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*.