

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 issue of the *Journal* is entitled, "Effects of Positive Airway on Clinical Measures of Hypertension in Type 2 Diabetes," by Dr. Bharati Prasad and colleagues from the University of Illinois at Chicago and the Edward J. Hines, Jr. Veteran's Administration Medical Center in Hines, IL. There is considerable epidemiologic evidence linking obstructive sleep apnea as an independent risk factor for the development of hypertension, as well as more recently Type 2 diabetes. However, intervention trials in which patients with obstructive sleep apnea and either hypertension or diabetes are treated to see if there are improvements in either blood pressure or glucose control have revealed modest or inconsistent results. In the current study, 221 patients from two Veteran's Affairs Medical Centers with a new diagnosis of obstructive sleep apnea and pre-existing hypertension or diabetes during 2005 and 2006 were identified. Individuals were treated with positive airway pressure for their obstructive sleep apnea. For each patient, the medical record was searched to find office blood pressure measurements and/or hemoglobin A1C values three months preceding initiation of positive airway pressure therapy, six months following initiation of therapy, and nine-twelve months following initiation of therapy. Of the 221 ultimate participants, 94% had a diagnosis of hypertension, while 40% had a diagnosis of Type 2 diabetes. At both time points after initiation of positive airway pressure therapy, systolic and diastolic blood pressure decreased with treatment. At the three-six month time point, there was a 7.44 mm of mercury drop in systolic blood pressure and 3.14 mm of mercury decrease in diastolic blood pressure. At the nine-twelve month time point, the decrease in systolic and diastolic pressures were 6.81 and 3.69 mm of mercury, respectively. These changes were highly significant. In contrast, there were no significant changes in hemoglobin A1C values. Further analysis after stratification by race, showed that African-Americans had a greater decrease in both systolic and diastolic blood pressure in comparison to European-Americans. Of additional note is that when data were analyzed from the three-six month time point as a function of positive airway pressure adherence, greater falls in diastolic blood pressure were noted with greater use of CPAP. Similarly, hemoglobin

A1C levels decreased more with greater amounts of positive airway pressure usage. The authors concluded that treatment of obstructive sleep apnea in patients with hypertension results in a decrease in blood pressure in a clinical population. However, prospective studies are necessary to better characterize which individuals most benefit from treatment.

The next paper to be summarized in this podcast is entitled, "Sleep-Disordered Breathing, Insomnia Symptoms, and Sleep Quality in a Clinical Cohort of US Hispanics in South Florida," by Dr. Shirin Shafazand and colleagues from University of Miami in Miami, FL, the Bruce W. Carter Veteran's Affairs Medical Center in Miami, FL, Arizona State University in Phoenix, AZ and the European Center for Environmental & Human Health in Truro, Cornwall, United Kingdom. The Hispanic community in the United States is the largest and fastest growing minority population. However, Hispanics are quite heterogeneous with origins from South America, Mexico, Cuba and other locales. There is a relative paucity of information regarding the prevalence of sleep disorders among Hispanics. The current study describes the frequency of sleep apnea risk, insomnia complaints, poor sleep quality and daytime somnolence in a cohort of U.S. Hispanics living in South Florida. Consecutive adult Hispanics were recruited from the sleep, general medicine, and pulmonary clinics of the University of Miami and the Miami Veteran's Affairs Medical Center from September, 2009, through November, 2010. They were administered the Stop-Bang Questionnaire, the Insomnia Severity Index, the Pittsburgh Sleep Quality Index and the Epworth Sleepiness Scale. There were 282 participants with 35% of Cuban origin, 22% of Puerto Rican origin and the remainder predominately from the Caribbean, Central and South America. An increased risk of sleep-disordered breathing was noted in 76% and insomnia was reported in 68%. Sleep quality was reported as fairly bad or very bad in 27% and 22% of the participants, respectively. The median Epworth Sleepiness Scale score was 9 but participants recruited from the sleep disorders clinics had significantly greater Epworth Sleepiness Scale scores than those who were recruited from the general medicine or pulmonary clinics. The data indicate that the prevalence of sleep disorders, including sleep-disordered breathing, is high in a clinical sample of Hispanics in South Florida. This would support the need for increased awareness, education and screening for sleep disorders among this population.

The third paper to be discussed in this podcast is entitled, "Treatment of Central Sleep Apnea in US Veterans," by Dr. Susmita Chowdhuri from the John D. Dingell Veteran's Af-

fairs Medical Center and Wayne State University School of Medicine in Detroit, MI. There is no consensus as to the best treatment for central sleep apnea. Various therapeutic options have been tested, some of these being continuous positive airway pressure (CPAP), bi-level positive airway pressure (Bi-level PAP), adaptive servo ventilation, supplemental oxygen, inhaled carbon dioxide, and several pharmacologic agents. The current study describes the outcomes from using a step-wise protocol to standardize the initial management of central sleep apnea. There were 162 patients in whom central apneas were identified (greater than five per hour) during a baseline, full-night polysomnogram or the diagnostic portion of a split-night polysomnogram. The protocol was as follows: CPAP was initiated starting at 4-5 cm of water and titrated upward to 10-14 cm of water. If there were persistent central apneic events at CPAP pressures of 10-14 cm of water, supplemental oxygen was added at two liters per minute and increased by 1 liter per minute to maintain oxygen saturations above 93%. When apneas persisted, despite addition of supplemental oxygen for 20 minutes, the CPAP was switched to Bi-level PAP. Initial Bi-level settings were adjusted to keep the inspiratory positive airway pressure 2-3 cm of water higher and the expiratory positive airway pressure setting 2 cm of water lower than the previous CPAP setting. These were adjusted upward as required if hypopneas and obstructive apneas appeared. Of the 162 patients, the protocol was completed in 151. An element of obstructive sleep apnea was present in 149 of the 151 patients. Optimal response was noted in 127 patients with the protocol. Forty-eight percent of these individuals responded to just CPAP. Twenty-five percent required addition of oxygen and only 11% required change of CPAP to Bi-level PAP. Forty-seven patients were using opioids for chronic pain. Similar to the group as a whole, 36 of these patients responded optimally to treatment with the most common form of effective treatment being CPAP. These results support recommendations of the recently published American Academy of Sleep Medicine Practice Parameters in which CPAP alone is recommended for the initial treatment of central sleep apnea. However, these practice parameters do not address the issue of whether positive airway pressure should be used in conjunction with supple-

mental oxygen. Thus, the results of this study suggest that this can be an efficacious combination.

The final study to be summarized in this podcast is entitled, "The Effect of Continuous Positive Airway Pressure Treatment on Blood Pressure: A Systematic Review and Meta-Analysis of Randomized Controlled Trials," by Dr. Sydney Montesi and colleagues from Brigham & Women's Hospital, Massachusetts General Hospital and Harvard Medical School in Boston, MA. As previously noted in this podcast, there is considerable epidemiologic evidence supporting obstructive sleep apnea as a causal factor in the development of hypertension. Although there have been a number of small intervention trials in which positive airway pressure is used to treat obstructive sleep apnea there have been some inconsistent results. The current study is a meta-analysis of 28 randomized controlled trials representing 1,948 patients. Analyses of all the data showed that in comparison to control, positive airway pressure therapy reduced systolic blood pressure by a mean of 2.58 mm of mercury and diastolic blood pressure by 2.01 mm of mercury. Subgroup analyses indicated that this effect was greater in those who were younger, sleepier, had greater severity of sleep apnea and greater adherence to positive airway pressure. These results provide additional evidence indicating that treatment of patients with both hypertension and obstructive sleep apnea with positive airway pressure will result in a modest decrease in their blood pressures.

I wish to call the listener's attention to several other papers in this issue of the *Journal*. There is a pro/con debate on whether the American Academy of Sleep Medicine should require pediatric accreditation for sleep medicine programs serving both children and adults. In addition, there is a must read special article describing updated rules for scoring respiratory events in sleep that will be used in the revised American Academy of Sleep Medicine Manual for the Scoring of Sleep and Associated Events.

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*.