More severe OSA leads to higher blood pressure in patients with resistant hypertension

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As severity of OSA increases so does severity of hypertension in patients with treatment-resistant hypertension. Credit: ATS

In patients with high blood pressure resistant to treatment who also have obstructive sleep apnea (OSA), the more severe their OSA, the higher their blood pressure, according to new research published online in the *Annals of the American Thoracic Society*.

In "Prevalence, Characteristics and Association of Obstructive Sleep Apnea with Blood Pressure Control in Patients with Resistant Hypertension," Esther Sapiña-Beltrán and colleagues report on a study conducted in 284 patients, ages 18 to 75, who were treated at hospitals in three countries—Spain, Singapore and Brazil—for resistant hypertension (RH). Of all patients with high blood pressure, those with RH, which requires three or more drugs to control, are at greatest risk for a heart attack or other cardiovascular event.

"We believe that OSA plays an important role in the pathogenesis and prognosis of patients with resistant hypertension," said senior author Mireia Dalmases Cleries, MD, a pulmonologist and sleep researcher at the Hospital Universitari Arnau de Vilanova, in Lleida, Spain. "Our study shows a dose-response association between OSA severity and blood pressure, especially during the nighttime period."

The study found:

- 83.5 percent of patients with resistant hypertension had OSA, including 31.7 percent with mild OSA, 25.7 percent with moderate OSA and 31.5 percent with severe OSA.
- OSA was slightly more likely in men than women: 86.3 percent vs. 76 percent; however, the men were twice as likely to have severe OSA.
- As the severity of OSA increased, ambulatory blood pressure increased, particularly at night. The average nighttime ambulatory blood pressure was 5.72 mmHg higher in those with severe OSA compared to those without OSA.

According to the authors, high blood pressure at night is a stronger predictor of cardiovascular risk than those whose blood pressure is high during the day. Because the study is not a randomized, controlled trial it cannot prove cause and effect. The authors also note that because only patients with resistant hypertension were included in the study, the findings cannot be generalized to other patients with high blood pressure.

Dr. Dalmases Cleries said these findings were derived from an ancillary study of the SARAH project. The project is evaluating the impact of OSA and continuous positive airway pressure (CPAP), the gold standard for OSA treatment, on

cardiovascular outcomes over five years of follow-up in what is expected to be the largest group of participants with RH and a sleep assessment.

Even before the results of SARAH are known, Dr. Dalmases Cleries said that "considering the high prevalence of OSA in resistant hypertensive subjects and findings from previous studies which show that treating OSA with CPAP can lower blood pressure, clinicians should consider performing a sleep study in patients with resistant hypertension."

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