

Use of CPAP for sleep apnea reduces blood pressure for patients with difficult to treat hypertension

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Among patients with obstructive sleep apnea and hypertension that requires 3 or more medications to control, continuous positive airway pressure (CPAP) treatment for 12 weeks resulted in a decrease in 24-hour average and diastolic blood pressure and an improvement in the nocturnal blood pressure pattern, compared to patients who did not receive CPAP, according to a study appearing in the December 11 issue of *JAMA*.

"Systemic hypertension is one of the most treatable cardiovascular risk factors. Between 12 percent and 27 percent of all hypertensive patients require at least 3 antihypertensive drugs for adequate [blood pressure](#) control and are considered patients with resistant hypertension. Patients with resistant hypertension are almost 50 percent more likely to experience a cardiovascular event than hypertensive patients without resistant hypertension, and the incidence of resistant hypertension is expected to increase," according to background information in the article. Recent studies have shown that [obstructive sleep apnea](#) [OSA] may contribute to poor control of blood pressure and that a very high percentage (>70 percent) of resistant hypertension patients have OSA. Continuous positive airway pressure is the treatment of choice for severe or symptomatic OSA. "A meta-analysis suggests that CPAP treatment reduces [blood pressure levels](#) to a clinically meaningful degree, but whether this positive effect is more pronounced in patients with resistant hypertension is unclear because studies on this issue are scarce and based

on single-center approaches."

Miguel-Angel Martinez-Garcia, M.D., Ph.D., of the Hospital Universitario y Politecnico La Fe, Valencia, Spain, and colleagues assessed the effect of CPAP treatment on blood pressure levels and nocturnal blood pressure patterns of 194 patients with resistant hypertension and OSA. The trial was conducted in 24 teaching hospitals in Spain; data were collected from June 2009 to October 2011. The patients were randomly assigned to receive CPAP (n = 98) or no CPAP (control; n = 96) while maintaining usual [blood pressure control](#) medication.

When the changes in blood pressure during the study period were compared between study groups by intention-to-treat, the CPAP group achieved a 3.1 mm Hg greater decrease in 24-hour average blood pressure and 3.2 mm Hg greater decrease in 24-hour [diastolic blood pressure](#), but the difference in change in 24-hour systolic blood pressure was not statistically significant compared to the control group. In addition, the percentage of [patients](#) displaying a nocturnal blood pressure dipper pattern (a decrease of at least 10 percent in the average night-time blood pressure compared with the average daytime blood pressure) at the 12-week follow-up was greater in the CPAP group than in the control group (35.9 percent vs. 21.6 percent). There was a positive correlation between hours of CPAP use and the decrease in 24-hour average blood pressure.

"Further research is warranted to assess longer-term health outcomes," the authors conclude.

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