

CPAP rapidly improves blood pressure and arterial tone in adults with sleep apnea

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A new study suggests that continuous positive airway pressure (CPAP) therapy rapidly improves blood pressure and arterial tone in adults with obstructive sleep apnea (OSA).

Results show that there was a significant reduction in systolic and [diastolic blood pressures](#) among [sleep apnea](#) patients who were compliant with CPAP therapy for three months. Successful treatment of sleep apnea also was associated with decreased vascular tone and arterial stiffness. Following one week of treatment withdrawal, these improvements disappeared and reverted to baseline values.

"We were surprised by the very rapid improvements in arterial tone, seen as early as four weeks into treatment, and how quickly they reversed after only a few days of treatment withdrawal," said principal investigator Claudia Korcarz, DVM, RDCS, manager and senior scientist at the University of Wisconsin Atherosclerosis Imaging Research Program (UW AIRP) in Madison. "We noticed these improvements in young, normotensive subjects. These findings demonstrate that the vascular effects of sleep apnea are reversible if treated early in the disease process, suggesting that we might be able to mitigate the long-term risk of chronic exposure to OSA."

The research abstract was published recently in an online supplement of the journal *Sleep* and will be presented Wednesday, June 4, in Minneapolis, Minnesota, at SLEEP 2014, the 28th annual meeting of the Associated Professional Sleep Societies LLC.

The study group comprised 47 adults with a mean age of about 41 years who had been recently diagnosed with OSA. They were evaluated before and after three months of CPAP therapy, as well as one week after treatment withdrawal. Carotid to radial artery pulse wave velocity and central aortic blood pressures were obtained by applanation tonometry. Brachial artery size and flow-mediated dilation were measured with B-mode ultrasound.

Subjects were considered to be compliant with treatment if they used CPAP therapy for at least four hours per night. Thirty-seven of the 47 participants met this criteria, using CPAP therapy for an average of 6.1 hours per night.

Korcarz noted that these findings reinforce that the effective treatment of OSA can have positive implications for cardiovascular health.

"The early diagnosis and treatment with well-monitored, continuous use of CPAP therapy in otherwise healthy young adults with moderate to severe [obstructive sleep apnea](#) might prevent the future development of hypertension and reduce the risk of cardiovascular complications associated with the disease," said Korcarz.

The AASM reports that obstructive sleep apnea is a common sleep illness affecting up to seven percent of men and five percent of women. It involves repetitive episodes of complete or partial upper airway obstruction occurring during sleep despite an ongoing effort to breathe. The most effective [treatment](#) option for OSA is CPAP [therapy](#), which helps keep the airway open by providing a stream of air through a mask that is worn during sleep.

More information: "Continuous Positive Airway Pressure Rapidly Improves Blood Pressure and Arterial Constriction in Young Adults," *Sleep*, 2014.

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