

CPAP superior to supplemental oxygen for BP reduction in obstructive sleep apnea

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Continuous positive airway pressure (CPAP), the most widely prescribed therapy for treatment of obstructive sleep apnea, resulted in significantly lower blood pressure compared to either nocturnal supplemental oxygen or an educational control treatment, according to a new study from Brigham and Women's Hospital (BWH).

The study is published in the June 12, 2014 issue of *The New England Journal of Medicine*.

"The effect of CPAP on blood pressure in this study is important for both physicians and their patients," said Daniel Gottlieb, MD, MPH, lead study author and a physician-scientist in BWH's Division of Sleep and Circadian Disorders. "Previous studies have demonstrated that a decrease in blood pressure of this magnitude is associated with up to a 20 percent reduction in mortality from stroke and a 15 percent reduction in cardiovascular mortality."

Researchers in the Heart Biomarker Evaluation in Apnea Treatment (HeartBEAT) study, a randomized, single-blind clinical trial conducted at four medical centers with funding from the American Recovery and Reinvestment Act, screened patients with established coronary heart disease or multiple [coronary heart disease](#) risk factors for the presence of obstructive [sleep apnea](#) using questionnaire and home sleep testing.

A total of 318 patients, aged 45 to 75 years, with at least moderately severe [obstructive sleep apnea](#) (apnea-hypopnea index greater than or

equal to 15 events per hour) were randomized to receive healthy lifestyle and sleep hygiene education alone (the control group), or in addition to either CPAP or nocturnal supplemental oxygen.

Researchers measured the participants' blood pressure over a 24-hour period before and after 12 weeks of treatment.

Researchers found that CPAP performed significantly better than either control or supplemental oxygen on lowering blood pressure. The effect of CPAP on blood pressure was greatest at night, the time when sleep apnea often prevents the expected fall in blood pressure, and was greater for diastolic than for [systolic blood pressure](#). Moreover, the decrease in blood pressure was seen despite generally well-controlled blood pressure at baseline.

"Studies like HeartBEAT provide an opportunity to rigorously test apnea treatment options, which should help physicians determine best treatments for individual patients," said James Kiley, PhD, director, Division of Lung Disease, National Heart, Lung, and Blood Institute, part of the National Institutes of Health.

Obstructive sleep apnea is characterized by repeated breathing pauses during sleep due to collapse of the upper airway. It is a common chronic condition, affecting an estimated nine percent of middle-aged women and 24 percent of middle-aged men, and is an established risk factor of hypertension. Treatment of sleep apnea with CPAP has been shown to reduce [blood pressure](#) in patients with previously untreated hypertension and in those with treatment-resistant hypertension.

Provided by Brigham and Women's Hospital

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