

Abstracts' Service

CPAP for the Metabolic Syndrome in Patients with Obstructive Sleep Apnea

Surendra K. Sharma, Swastik Agrawal, Deepak Damodaran, Vishnubhatla Sreenivas, Tamilarasu Kadhiravan, Ramakrishnan Lakshmy, Priya Jagia and Atin Kumar

The New England Journal of Medicine 2011;365:2277-86

Background. Obstructive sleep apnea is associated with an increased prevalence of the metabolic syndrome and its components. It is unclear whether treatment of obstructive sleep apnea syndrome with continuous positive airway pressure (CPAP) would modify these outcomes.

Methods. In our double-blind, placebo-controlled trial, we randomly assigned patients with obstructive sleep apnea syndrome to undergo 3 months of therapeutic CPAP followed by 3 months of sham CPAP, or vice versa, with a washout period of 1 month in between. Before and after each intervention, we obtained measurements of anthropometric variables, blood pressure, fasting blood glucose levels, insulin resistance (with the use of homeostasis model assessment), fasting blood lipid profile, glycated hemoglobin levels, carotid intima-media thickness, and visceral fat. The metabolic syndrome was defined according to National Cholesterol Education Program Adult Treatment Panel III criteria, with Asian cutoff values for abdominal obesity.

Results. A total of 86 patients completed the study, 75 (87%) of whom had the metabolic syndrome. CPAP treatment (*vs.* sham CPAP) was associated with

significant mean decreases in systolic blood pressure (3.9 mm Hg; 95% confidence interval [CI], 1.4 to 6.4; $P=0.001$), diastolic blood pressure (2.5 mm Hg; 95% CI, 0.9 to 4.1; $P<0.001$), serum total cholesterol (13.3 mg per deciliter; 95% CI, 5.3 to 21.3; $P=0.005$), non-high-density lipoprotein cholesterol (13.3 mg per deciliter; 95% CI, 4.8 to 21.8; $P=0.009$), low-density lipoprotein cholesterol (9.6 mg per deciliter; 95% CI, 2.5 to 16.7; $P=0.008$), triglycerides (18.7 mg per deciliter; 95% CI, 4.3 to 41.6; $P=0.02$), and glycated hemoglobin (0.2%; 95% CI, 0.1 to 0.4; $P=0.003$). The frequency of the metabolic syndrome was reduced after CPAP therapy (reversal found in 11 of 86 patients [13%] undergoing CPAP therapy *vs.* 1 of 86 [1%] undergoing sham CPAP). Accelerated hypertension developed in 1 patient receiving CPAP therapy first, intolerance to CPAP developed in 2 others, and another patient declined to continue sham CPAP.

Conclusions. In patients with moderate-to-severe obstructive sleep apnea syndrome, 3 months of CPAP therapy lowers blood pressure and partially reverses metabolic abnormalities. (Funded by Pfizer; ClinicalTrials.gov number, NCT00694616).

The Effect of Simulated Obstructive Apnea and Hypopnea on Aortic Diameter and BP

Anne-Christin Stowhas, Mehdi Namdar, Patric Biaggi, Erich W. Russi, Konrad E. Bloch, John R. Stradling, and Malcolm Kohler

Chest 2011;140:675-680

Background. Preliminary evidence supports an association between obstructive sleep apnea (OSA) and thoracic aortic dilatation. The mechanisms through which OSA may promote thoracic aortic dilatation are incompletely understood. Therefore, we studied the acute effects of simulated apnea and hypopnea on aortic diameter and BP in humans.

Methods. The diameter of the aortic root was measured in 20 healthy volunteers by echocardiography, and peripheral BP was continuously recorded prior, during, and immediately after simulated obstructive hypopnea

(inspiration through threshold load), simulated obstructive apnea (Muller maneuver), end-expiratory central apnea, and normal breathing in randomized order.

Results. Proximal aortic diameter increased significantly during inspiration through a threshold load (+6.48%; SE, 3.03; $P=.007$), but not during Muller maneuver (+3.86%; SE, 2.71; $P=.336$) or end-expiratory central apnea (+0.62%; SE, 2.94; $P=.445$). Maneuver-induced changes in mean BP were observed during inspiration through a threshold load

(-10.5 mm Hg; SE, 2.2; $P < .001$), the Muller maneuver (-8.8 mm Hg; SE, 2.4; $P < .001$), and end-expiratory central apnea (-4.2 mm Hg; SE, 1.4; $P = .052$). There was a significant increase in mean BP on release of threshold load inspiration (+8.1 mm Hg; SE, 2.9 mm Hg; $P = .002$), Muller maneuver (+10.7 mm Hg; SE, 2.9; $P < .001$), and end-expiratory central apnea (+10.6 mm Hg; SE, 2.5; $P < .001$).

Conclusions. Simulated obstructive hypopnea/apnea and central apnea induced considerable changes in BP, and obstructive hypopnea was associated with an increase in proximal aortic diameter. Further studies are needed to investigate effects of apnea and hypopnea on transmural aortic pressure and aortic diameter to define the role of OSA in the pathogenesis of aortic dilatation.

New American Cancer Society Process for Creating Trustworthy Cancer Screening Guidelines

Otis Brawley, Tim Byers, Amy Chen, Michael Pignone, David Ransohoff, Maryjean Schenk, Robert Smith, Harold Sox, Alan G. Thorson and Richard Wender

JAMA 2011;306:2495-2499

Guidelines for cancer screening written by different organizations often differ, even when they are based on the same evidence. Those dissimilarities can create confusion among health care professionals, the general public, and policy makers. The Institute of Medicine (IOM) recently released 2 reports to establish new standards for developing more trustworthy clinical practice guidelines and conducting systematic evidence reviews that serve as their basis. Because the American Cancer Society (ACS) is an important source of guidance about cancer screening for both health care practitioners and the general public, it has revised its methods to create a more transparent, consistent, and rigorous

process for developing and communicating guidelines. The new ACS methods align with the IOM principles for trustworthy clinical guideline development by creating a single generalist group for writing the guidelines, commissioning independent systematic evidence reviews, and clearly articulating the benefits, limitations, and harms associated with a screening test. This new process should ensure that ACS cancer screening guidelines will continue to be a trustworthy source of information for both health care practitioners and the general public to guide clinical practice, personal choice, and public policy about cancer screening.

Bronchoalveolar Lavage for the Evaluation of Interstitial Lung Disease: Is It Clinically Useful?

K.C. Meyer and G. Raghu

European Respiratory Journal 2011;38:761-769

Although the application of thoracic high-resolution computed tomography (HRCT) to clinical pulmonology has revolutionised the diagnostic approach to patients with suspected interstitial lung disease (ILD), additional testing is often needed to make a confident ILD diagnosis.

Bronchoalveolar lavage (BAL) can play a significant role in making an accurate and confident diagnosis of specific forms of ILD. When BAL is used in conjunction with comprehensive clinical information and HRCT, BAL nucleated immune cell

patterns can frequently provide useful information for diagnostic evaluation and lessen the need to proceed to more invasive procedures, such as surgical lung biopsy.

Additionally, BAL can identify confounding conditions, such as infection or malignancy. However, BAL technique, and protocols for processing and analysing BAL fluid are critically important for providing useful information.

This perspective reviews the current status of using BAL as a diagnostic tool for the diagnosis of ILD.