

## Cardiovascular consequences of sleep apnea: III-Impact of continuous positive airway pressure treatment

*Uyku apnesinin kardiyovasküler sonuçları: III- Sürekli pozitif havayolu basınç tedavisinin etkisi*

Dear Editor,

We read with great interest the review manuscript entitled "Cardiovascular consequences of sleep apnea: III-Impact of continuous positive airway pressure treatment" by Çelen et al. (1). It is well-known that sleep-disordered breathing is one of the important factors contributing to the development and/or progression of heart failure (HF) (2). This condition is related to recurring attacks of apnea, hypopnea and hyperpnea, sleep disruptions, arousals, intermittent hypoxemia, hypocapnia, and hypercapnia, and intrathoracic pressure changes. Furthermore, arterial hypertension, obesity, diabetes mellitus and coronary artery disease, which are independent predictors of left ventricular dysfunction, often have coexistence with obstructive sleep apnea (OSA). It is suggested that patients with acute myocardial infarction, especially having apneas and/or hypoxemia without evident HF should be evaluated for sleep disorders.

As a novel, we showed that severe and moderate OSA patients had left (3) and right (4) ventricular global (systolic and diastolic) dysfunction with an increased myocardial performance index (MPI), and continuous positive airway pressure (CPAP) therapy significantly decreases left and right ventricular wall thickness and improves ventricular global function (MPI) even with six months of CPAP usage (3,4). In addition, we showed a significant positive correlation between MPI and severity of OSA, and concluded that especially severe OSA patients with diastolic dysfunction might have an increased risk for HF, since diastolic dysfunction might be combined with systolic dysfunction. Moreover, our findings about effects of OSA on left and right ventricular global functions were confirmed in a recent study by Romero-Corral et al. (5).

Finally, in a recent study, we aimed to evaluate acute effects of adaptive servo ventilation (ASV) on Cheyne-Stokes respiration (CSR) and neurohormones in the patients with HF, and showed that one night ASV treatment improves CSR, partial pressure of oxygen in arterial blood, and oxygen saturation and provides significant reductions in plasma catecholamines and NT-proBNP levels in the patients with HF and CSR (6).

As a conclusion, early recognition and appropriate therapy of sleep-disordered breathing may improve cardiovascular functions, and prevent further progression to HF and death.

**Dursun Dursunoğlu, Neşe Dursunoğlu\***  
From Departments of Cardiology and \*Chest Diseases, Medical Faculty, Pamukkale University Denizli, Turkey

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**Address for Correspondence/Yazışma Adresi:** Dr. Dursun Dursunoğlu, Department of Cardiology, Pamukkale University Medical Faculty, Kınıklı Campus, 20700, Denizli, Turkey  
Phone: +90 258 444 07 28 Fax: +90 258 213 49 22  
E-mail: dursundursunoglu@yahoo.com

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### Author's Reply

Dear Editor,

We acknowledge the studies referred in the letter as suggestive reports for an independent relationship between sleep-disordered breathing and heart failure as well as for the beneficial effect of continuous positive airway pressure (CPAP) on the prognosis of these patients. Due to the limitation of the number of references according to the journal's policy, the randomized controlled trials and longitudinal studies within the whole cardiovascular field were main focus in our review article. We agree that early recognition and appropriate therapy of sleep-disordered breathing may improve cardiovascular function and prevent further progression to heart failure and death. However, evidence from long-term prospective randomized controlled trials to test the hypothesis, whether cardiac patients with sleep-disordered breathing but without subjective sleepiness should be offered CPAP treatment to reduce cardiovascular morbidity and mortality, is still urging.

**Yüksel Peker**  
Department of Emergency and Cardiovascular Medicine,  
University of Gothenburg & Sleep Medicine Unit, Skaraborg  
Hospital, Skövde, Sweden

**Address for Correspondence/Yazışma Adresi:** Yüksel Peker, MD, PhD, Associate Professor and Senior Lecturer Department of Emergency and Cardiovascular Medicine, University of Gothenburg & Sleep Medicine Unit, Skaraborg Hospital, SE 54185 Skövde, Sweden  
Phone: +46 500 431000 Fax: +46 500 431897  
E-mail: yuksel.peker@lungall.gu.se