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Deleterious effects of sleep-disordered breathing on the heart and vascular system.

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Obstructive sleep apnea (OSA) is the most common form of sleep-disordered breathing, affecting 5-15% of the population. It is characterized by intermittent episodes of partial or complete obstruction of the upper airway during sleep that disrupts normal ventilation and sleep architecture, and is typically associated with excessive daytime sleepiness, snoring, and witnessed apneas. Patients with obstructive sleep apnea present risk to the general public safety by causing 8-fold increase in vehicle accidents, and they may themselves also suffer from the physiologic consequences of OSA; these include hypertension, coronary artery disease, stroke, congestive heart failure, pulmonary hypertension, and cardiac arrhythmias. Of these possible cardiovascular consequences, the association between OSA and hypertension has been found to be the most convincing. Although the exact mechanism has not been understood, there is some evidence that OSA is associated with frequent apneas causing mechanical effects on intrathoracic pressure, cardiac function, and intermittent hypoxemia, which may in turn cause endothelial dysfunction and increase in sympathetic drive. Therapy with continuous positive airway pressure has been demonstrated to improve cardiopulmonary hemodynamics in patients with OSA and may reverse the endothelial cell dysfunction. Despite the availability of diagnostic measures and effective treatment, many patients with sleep-disordered breathing remain undiagnosed. Therefore, OSA continues to be a significant health risk both for affected individuals and for the general public.

Awareness and timely initiation of an effective treatment may prevent potential deleterious cardiovascular effects of OSA. Copyright 2006 S. Karger AG, Basel.

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