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## Restless Legs Syndrome and Hypertension: Is there a link?

It is well known that obstructive sleep apnea (OSA) is a very common risk factor for hypertension, and continuous positive airway pressure (CPAP) therapy decreases blood pressure among those with OSA and may help prevent hypertension.<sup>1</sup> A meta-analysis of patients with OSA using CPAP therapy found a trend for systolic blood pressure reduction to be associated with CPAP therapy compliance.<sup>2</sup> Patients with untreated severe OSA have a higher incidence of fatal as well as non-fatal cardiovascular events than do untreated patients with mild-moderate disease, simple snorers, and patients treated with CPAP therapy.<sup>3</sup> In fact, a cautionary case report of a patient with severe OSA who had undergone a tracheostomy had such an acute improvement from his preoperative hypertensive status that he immediately required a significant reduction in antihypertensive medications. The authors concluded that the severe reduction in blood pressure can be so sudden to actually mimic sepsis.<sup>4</sup>

Restless legs syndrome is a disorder characterized by sleep-disrupting unpleasant leg sensations, often accompanied by daytime behavioral problems. Symptoms of restless legs syndrome occurring 5 or more nights per month may be reported by 3% of people 18 to 29 years old, 10% of those aged 30 to 79, and 19% of those 80 years and older.<sup>5</sup> The 2005 National Sleep Foundation Sleep in America Poll which included 1,506 adults determined that symptoms of RLS that included unpleasant feelings in the legs for at least a few nights a week, which were worse at night, were reported by 9.7% of individuals in this poll, including 8% of men and 11% of women. Interestingly, adults who were at risk for RLS appeared to also be at increased risk for OSA.<sup>6</sup>



OSA is associated with hypertension, but can restless legs syndrome also be associated with hypertension? A study of ten patients with RLS found that blood pressure increased significantly in association with all periodic leg movements-related arousals and hypothesized that repetitive nocturnal blood pressure fluctuations could contribute to the risk of cardiovascular diseases in patients with restless legs syndrome. Periodic limb movements are leg jerks throughout the night that may be seen in about 85% of patients with restless legs syndrome.<sup>7</sup> The occurrence of periodic limb movements has been associated with a shift to increased sympathetic activity.<sup>8</sup> A study of forty-two RLS patients underwent one night of polysomnographic recordings. Periodic limb movements were

associated with heart rate changes characterized by a tachycardia followed by a bradycardia, similar to what is seen in OSA related arousals.<sup>9</sup> A meta-analysis of 18,980 subjects analyzing the incidence of restless legs syndrome and periodic limb movement disorder throughout the UK, Germany, Italy, Portugal and Spain revealed that OSA and heart disease were significantly associated with both disorders.<sup>10</sup> Very interestingly, periodic limb movements are typically treated if they are accompanied by an arousal, but an increase in heart rate can be seen with periodic limb movements without arousals even before the onset of periodic limb movement.

There is now more than one sleep disorder to consider in patients with hypertension.<sup>11</sup>

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2 [Lung](#), 2007 Mar-Apr;185(2):67-72. Epub 2007 Mar 28.

3 [Lancet](#), 2005 Mar 19-25;365(9464):1046-53.

4 [J Clin Sleep Med](#), 2007 Apr 15;3(3):297-9.

5 [Arch Intern Med](#), 2000 Jul 24;160(14):2137-41.

6 [Chest](#), 2006 Jan;129(1):76-80.

7 [Neurology](#), 2007 Apr 10;68(15):1213-8.

8 [Clin Neurophysiol](#), 2005 May;116(5):1096-104.

9 [Clin Neurophysiol](#), 2003 Nov;114(11):2188-95.

10 [J Psychosom Res](#), 2002 Jul;53(1):547-54.

11 [Clin Neurophysiol](#), 2002 Jun;113(6):883-91.