## The Implications of Poor Sleep Quality on Arterial Health in Persons with Multiple Sclerosis

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**Objective:** Multiple sclerosis (MS) is a chronic, autoimmune disease that is associated with increased risk of cardiovascular disease (CVD) when compared to the general population. Approximately 47% of patients with MS have reported poor sleep quality. Evidence supports an association between poor sleep and increased CVD risk. Augmentation index (AIx) is a marker of arterial health. The purpose was to examine the association between sleep quality and arterial health in patients with MS.

**Methods:** Thirty two patients with MS (Age: Mean $\pm$ SD = 47.6 $\pm$ 10.6 yrs) and 32 matched controls (47.6 $\pm$ 11.3 yrs) were administered the Pittsburgh Sleep Quality Index (PSQI) to assess self-reported sleep quality. Subjects having a global score >5 were classified as "poor sleepers." Applanation tonometry was performed on the radial artery to obtain arterial pressure waveforms.

**Results:** Twenty MS subjects and 7 control subjects were classified as "poor sleepers." Statistical analysis confirmed that "poor sleep" was associated with higher AIx (16.2 $\pm$ 2.3 vs 23.7$\pm$ 2.9, $p<0.05$) regardless of having MS. Among those with MS, AIx was significantly higher in the subjects who reported poor sleep quality when compared with those who reported good sleep quality (15.7 $\pm$3.8 vs 27.1 $\pm$ 3.0, $p<0.05$).

**Conclusions:** Poor sleep quality has a negative effect on arterial health overall and in those with MS. Additionally, those with MS who report poor sleep quality have an amplified negative arterial outcome compared to patients with MS with good sleep quality and healthy controls.