Compression Stockings May Reduce Incidence of OSA

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August 8, 2011 — Compression stockings may decrease the incidence of obstructive sleep apnea (OSA) in patients with chronic venous insufficiency, reducing nightly episodes by more than a third compared with a control period with no stockings, according to the findings of a new study.

Stefania Redolfi, MD, with the Hôpitaux de Paris, Groupe Hospitalier Pitié-Salpêtrière, Sleep Disorders Unit, in Paris, France, and colleagues reported the findings online August 4 in the *American Journal of Respiratory and Critical Care Medicine*.

"In previous studies, we showed that the apnea-hypopnea index is strongly linked to the volume of fluid shifting from the legs into the neck overnight, suggesting that such a mechanism plays a pathophysiological role in OSA," the study authors write.

In the current study, the researchers found that in nonobese participants with OSA and venous insufficiency, "wearing compression stockings during the day attenuates OSA by reducing fluid accumulation in the legs and its overnight redistribution into the neck. Reducing overnight rostral fluid displacement is therefore a new means of attenuating OSA," they write.

The study included 12 participants who were randomly assigned to 1 week of wearing compression stockings or to a 1-week control period without compression stockings. At that time, they crossed over to the other group. Overnight changes in leg fluid volume and neck circumference were measured at baseline and at the end of the compression stocking period and the control period.

Obstructive apneas were defined as cessation of airflow, and hypopnea was defined as at least a 50% reduction in airflow from baseline but remaining above zero for at least 10 seconds. The definition of hypopnea also required an out-of-phase thoracoabdominal motion or flow limitation on the nasal pressure tracing associated with either an oxygen desaturation of more than 3% or an arousal.

Compared with the control period, at the end of the week-long compression stocking period, the overnight leg fluid volume was reduced by 62% (P = .001), and increase in overnight neck circumference was reduced by 60% (P = .001). In addition, the number of apneas and hypopnea per hour of sleep was reduced by 36% (P = .002).

"This double cross-over randomized study sheds light on the relationship between overnight displacement of fluid from the legs into the neck and OSA," the study authors conclude. "This provides proof-of-principle that reducing overnight rostral fluid displacement is a new means of attenuating OSA," they add. Other interventions that might be tested include diuretics and exercise.

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