Patients With Mild To Moderate Obstructive Sleep Apnea May Benefit From Exercise

Although CPAP is the gold standard treatment for severe OSA, the vast majority of subjects from epidemiological studies have mild or moderate OSA. The compliance to CPAP among mild to moderate OSA is variable, and there are only a few forms of alternative treatments for this large number of subjects and patients.

"It was commonly thought among doctors that strengthening and toning oropharyngeal muscles would have no benefit to the patient during sleep, but a recent study showed that didgeridoo playing helped decrease snoring and OSA," said Geraldo Lorenzi-Filho, M.D., Ph.D. "This was a change of paradigm, and indicated that not everything you do during the day is lost during sleep."

Dr. Lorenzi-Filho and colleagues investigated the effects of exercises on the symptoms of OSA in the first randomized, controlled study to do so. They recruited a group of 31 recently-diagnosed patients, who were evaluated for OSA severity using polysomnography. Snoring frequency and intensity, daytime sleepiness and sleep quality were assessed using self-reports and validated questionnaires. The subjects were the randomized to two groups —the exercise group and the control group. Each of the 16 individuals in the exercise group underwent a daily and weekly regimen of tongue and pharyngeal exercises. The 15 individuals in the control group underwent a sham treatment regimen involving deep breathing and nasal lavage with a saline solution.

After three months, there were no significant changes to OSA symptoms in the control group. However, the treatment group showed significant improvements in lowest oxygen saturation levels in blood, subjective sleepiness, snoring symptoms and quality of sleep scores.

Additionally, while there were no changes in abdominal circumference in either group, neck circumference decreased significantly in the treatment group with no concomitant changes in body mass index.

"These data suggest that the exercises were able to promote remodeling of the upper airways," Said Dr. Lorenzi-Filho.

Overall, the treatment groups showed a 40 percent decrease in OSA severity. Ten of the 16 patients in the treatment group who had originally been classified as having moderate OSA based on their apnea-hypopnea index (AHI) score were reclassified as having either mild (eight) or no OSA (two). "This was nearly two thirds of the treatment group, whereas none of the control group were reclassified with a milder disease," said Dr. Lorenzi-Filho. "This indicates to us that these exercises have significant potential to improve symptoms in sufferers of OSA."

"The muscles of the upper airways are extremely complex and the mechanisms leading to OSA are far from being well understood," said Dr. Lorenzi-Filho. "A strong muscle may be working on the wrong direction and not necessarily helping to open the airways. The overall set of exercises we tested target the correct physiology of the upper airway and should promote remodeling of the upper airways."

This was the first rigorous study of the subject, and the evidence supports that certain exercises do, in fact, aid in remodeling the upper airways in such a way as to reduce OSA symptoms.

"[T]here seems to be reasonable logic to targeting tongue strength as a potential mechanism for remodeling the upper airway," wrote Catriona Steele, Ph.D. in an accompanying editorial that appears in the same issue of the journal.

Dr. Lorenzi-Filho acknowledges that work is just beginning in this exciting area of research: "How exactly these exercises work? Do we need all of them or just a few? Do different patients need different set of exercises? What are the exact mechanisms leading to upper airway obstruction?," he

asked. "The answer is we don't know, but these are some of the possible future areas of research."

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