

Morbid Obesity and Sleep Apnea. Is Weight Loss the Answer?

Commentary on Lettieri CJ et al. Persistence of obstructive sleep apnea after surgical weight loss. *J Clin Sleep Med* 2008;4(4):333-338.

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Obesity, usually assessed through the body mass index (BMI), is a recognized cause of obstructive sleep apnea (OSA).¹ This causal relationship is, however, not absolute. Some studies suggest that regional obesity (e.g., neck obesity) is more important than overall body mass.^{2,3} In our department, for instance, 30% of patients with significant clinical sleep apnea entitled to CPAP treatment according to the Belgian Social Security reimbursement rules (apnea-hypopnea index, AHI, > 20/h and arousal index > 30/h plus symptoms) have a BMI lower than 30 kg/m², the usual limit between overweight and obesity.⁴ It remains nevertheless true that BMI and sleep apnea severity show a dose-response relationship; the prevalence of OSA among the severely obese has been reported to range from 50% to 90%, leading to the assumption that effective treatment of obesity could cure OSA.

Obesity has also been linked to numerous other adverse health consequences including type 2 diabetes, hypertension, hyperlipemia, cardiovascular morbidity, liver steatosis, cholelithiasis, gastroesophageal reflux, certain forms of cancer, degenerative joint disease⁴ and excessive daytime somnolence (the latter one even among those who do not demonstrate sleep apnea).⁵

Bariatric surgery appears as the most effective treatment for long-term reduction of body weight.⁶ The “Swedish obese subjects” study has already shown that long-term weight reduction—achieved by bariatric surgery—substantially decreases the cardiovascular risk profile, ultimately resulting in a decrease of overall mortality.⁷ Given the above-mentioned strong correlation between obesity and OSA it could be thought that long-term weight reduction could also lead to significant im-

provement of OSA, as shown in the Swedish cohort.⁷

In this issue of the Journal a report by Lettieri et al.⁸ introduces a word of caution in this success story. Lettieri et al. studied 24 obese patients (BMI ranging from 37 to 73 kg/m² with an average BMI of 51 ± 10.4 kg/m²) with OSA before and one year after bariatric surgery. Most patients (n = 17) had severe OSA (apnea-hypopnea index > 30/h).

Surgery was successful: the average BMI fell from 51 ± 10.4 to 32.1 ± 5.5 kg/m². The AHI decreased by 23.4 events per hour in average, from 47.9 ± 33.8 to 24.5 ± 18.1. Both changes were statistically significant. Despite impressive weight loss after bariatric surgery, the AHI had increased in 2 patients. Most patients had an AHI similar or only modestly lower than that seen at baseline. Only one patient was “cured” (AHI < 5/h). Half of the patients still had an Epworth sleepiness score (ESS) higher than 10, implying persistent daytime sleepiness; all but one patient still snored at follow-up, but only 7 patients reported snoring. In summary, surgery was successful in all patients, but the AHI did not decrease to the point which would lead a clinician to consider it safe to stop treatment. Accordingly, 20 patients underwent a CPAP titration study at follow-up. The good news was that pressure requirements were lower than at baseline. The bad news was that only 6 patients accepted treatment with CPAP. Compliance at follow-up was independent of weight loss, changes in AHI, or ESS, but was related to residual snoring. Patients who denied snoring at follow-up were more likely to refuse CPAP.

It is of importance to note that the patients in this report include only those that were referred for sleep evaluation prior to bariatric surgery, which represents only 20% of the patients undergoing bariatric surgery at their center. The study is therefore subject to a selection bias as acknowledged by the authors; thus the results may not be generalizable.

Needless to say, the decrease in general health risks in these patients as a result of bariatric surgery is beyond doubt. Nevertheless, the message of this report is worth retaining: patients undergoing bariatric surgery should perhaps be advised to continue CPAP therapy until a new evaluation is performed at follow-up before deciding to stop treatment.

Disclosure Statement

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