Obstructive sleep apnea

(JANUARY 2016)

TO THE EDITOR: Thanks for the concise review of obstructive sleep apnea (OSA) in the January 2016 issue.[1] I offer the following comments and questions:

1. Risk factors for OSA include large neck circumference, which in **Table 1** is defined as larger than 40 cm (15.75 inches), which would include shirt collar sizes 16 and above. In the second paragraph of the text, large neck circumference is defined as greater than 17 inches in men, which would include collar sizes above 17. The definition of a large neck as larger than 40 cm must obviously be more sensitive for predicting OSA, and the definition of greater than 17 inches more specific. Which do the authors use in clinical practice?

2. The American Academy of Sleep Medicine is quoted as recommending home OSA screening "if direct monitoring of the response to non-[continuous positive airway pressure] treatments for sleep apnea is needed."[2] However, the need for direct monitoring would seem to be a contraindication to home testing rather than an indication. If this statement is correct as written, would the authors explain why and how specific non-CPAP treatments for OSA are more amenable to monitoring at home than in the sleep lab?

3. Patients with Parkinson disease are at risk for both OSA and hypotension, making them generally an exception to the association of OSA with hypertension.[3]

4. The home overnight OSA test often consists of a pulse oximeter worn for 8 hours at night, taped to a finger.[4] This simple, inexpensive test for OSA detects episodes of apnea or hypopnea that result in arterial desaturation. Is it beneficial to also document episodes of apnea or hypopnea that do not result in arterial desaturation? These episodes are included in the 17% false-negative rate for home OSA testing mentioned in the text. Are these episodes important clinically, other than for prognosis in patients who may go on to develop apneic episodes severe enough to cause desaturation?

5. Lastly, the authors may wish to comment on the importance of diagnosing and treating OSA in patients who plan to have elective surgery under general anesthesia, which can lead to profound sleep apnea in the recovery room, with associated morbidity and death.[5]

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IN REPLY: We thank Dr. Keller for his thorough reading of our article.[1]

Regarding the predictive value of neck circumference for obstructive sleep apnea, (OSA), neck circumference is one of many tools to screen for OSA. If neck circumference greater than 38 cm is applied without other predictors (such as the presence of snoring, daytime sleepiness, or elevated body mass index), it provides only a 58% sensitivity and 79% specificity.[2] It is less an issue of inches vs collar size vs centimeters than of combining circumference with other parameters (as in the STOP-BANG questionnaire) before proceeding with a sleep study. The senior author of our article (G.R.) uses 38 cm.

With respect to home vs sleep lab monitoring, the question was beyond the scope

of the paper and outside our expertise, as we are both general internists. The home venue recommendations in this instance were taken directly from the American Academy of Sleep Medicine.[3] We would rely on consultation with a sleep specialist before ordering home monitoring to determine the potential success of non-CPAP interventions for OSA.

As for Parkinson disease as an exception to OSA and hypertension, we wrote in the paper, "Untreated OSA is associated with a number of conditions."[1] Yes, resistant hypertension is prominent in today's epidemic of obesity, diabetes, and OSA, but not everyone with coronary artery disease, atrial fibrillation, or heart failure—as in persons with Parkinson disease—has hypertension. The associated conditions in our paper are more typical of a general medical practice, but we agree that Parkinson disease is associated with OSA. Patients with hypertension and OSA are more prevalent because the clinical risk factors for OSA and hypertension are common to both conditions.[4]

In adults, apnea is considered present when the airflow drops by 90% or more from the pre-event baseline. Hypopnea in adults is present when the airflow drops by 30% or more of the pre-event baseline for 10 or more seconds in association with either 3% or greater arterial oxygen desaturation or an electroencephalographic arousal.[5] Studies have shown that episodes of hypopnea with 2% oxygen desaturation are associated with an increased prevalence of metabolic impairment.[6] A higher degree of desaturation, ie, more than 4%, was associated with increased prevalence of self-reported cardiovascular disease.[7] But the significance of episodes of hypopnea without arterial desaturation is not well known to us and was beyond the scope of our article.

Our article was primarily focused on screening for OSA in ambulatory clinical practice and was not intended as a comprehensive review of screening in different settings of patient care. As to the importance of recognizing OSA in patients undergoing elective surgery under general anesthesia, we agree that screening is important to reduce the risk of postoperative adverse respiratory events in patients with a high pretest probability of OSA. In a recent study by Seet et al,[8] patients with high STOP-BANG questionnaire scores (≥ 3) had higher rates of intraoperative and early postoperative adverse events than those with low scores (< 3). The risk of adverse events correlated with higher scores, and patients with a STOP-BANG score of 5 or more had a five times greater risk of unexpected intraoperative and early postoperative adverse events, whereas those with a STOP-BANG score of 3 or more had a one in four chance of an adverse event. We recommend polysomnography for patients with a STOP-BANG score of 5 or more before elective surgery.

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