Comparing the criteria that we used with the 2007 manual, there is no difference regarding the definition of apnea. However, there are some changes in the definition of hypopnea. In the criteria we used, an episode of hypopnea was defined as a reduction of nasal air flow ≥ 50% with a drop in pulse oxygen saturation ≥ 3% which last more than 10 s. In the 2007 manual, either a drop of pulse oxygen saturation ≥ 4% with a decrease of nasal air flow ≥ 30% or a drop of pulse oxygen saturation ≥ 3% with a decrease of nasal air flow ≥50% which last ≥ 10 s will be defined as 1 episode of hypopnea. The definition in the 2007 manual for hypopnea is broader than the definition we used for our study.

In our 177 study patients for validating the STOP questionnaire, the severity classification based on the AHI and number of patients in each group can be found on page 817;[5] AHI ≤ 5:55, AHI > 5 and ≤ 15:52, AHI > 15 and ≤ 30:31, and AHI > 30:39. When doing the analysis of predictive parameters, we had to classify patients into either smaller or bigger than the cutoff value and use this classification to evaluate the screening tools. That is the reason why we combined patients with moderate and severe obstructive sleep apnea (OSA) in one group to evaluate the capacity of screening tools to identify this group of patients.

We agree with Dr. Overdyk and colleagues that the duration of oxygen desaturation, apnea and hypopnea, rate of desaturation, adequacy of ventilation recovery, and level and stability of the arousal threshold are very important factors in evaluating the severity of OSA, especially for assessing the potential to trigger other perioperative adverse events. However, there is no agreement yet on how to incorporate these factors into the severity classification of OSA patients.

Our main focus was to develop and validate a concise and easy-to-use screening tool for preoperative clinics. We agree with Dr. Overdyk and colleagues that the STOP questionnaire is a practical step forward in identifying patients with OSA, and it bears the same limitations as other questionnaires. To more accurately stratify the perioperative risk, guide postoperative monitoring, and predict outcome, we need to combine the score of the STOP questionnaire with the other information such as the need for narcotics and the invasiveness of the surgery. These points were illustrated in the American Society of Anesthesiologists guideline on the perioperative management of OSA patients.[6]

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# Concerns about the Validation of the Berlin Questionnaire and American Society of Anesthesiologist Checklist as Screening Tools for Obstructive Sleep Apnea in Surgical Patients

*To the Editor:*—In the May 2008 issue of ANESTHESIOLOGY, Chung *et al.* published an article where they describe the validation of the Berlin questionnaire and the American Society of Anesthesiologist checklist as screening tools for obstructive sleep apnea in surgical patients, and compare them with the STOP questionnaire.[1] The authors conclude that both the STOP and American Society of Anesthesiologists checklist were able to identify patients who were likely to develop postoperative complications. However, after taking a look at the results, I believe that it would have been more accurate to mention respiratory complications in particular. Moreover, when reviewing the odds ratios for effectors on the incidence of postoperative complications, I am concerned to find that the confidence intervals for both the STOP and American Society of Anesthesiologists checklists include the null value.[2] In contrast, the odds ratio for the STOP-Bang questionnaire presents a confidence interval that does not comprise the null value.

With reference to the potential limitations for this study described by the authors, I agree with them about the possible bias associated with self-selection of patients. Only 416 (17%) of 2,467 patients gave consent to participate in a polysomnographic study, whereas finally 211 (8.6% of the total population) showed up to undergo it. Another issue is, when reading the analysis of those 211 patients, there is little valuable information left about their preexisting conditions, such as number of smokers, type of surgery and anesthesia technique given,[3] or patients suffering from asthma or other pulmonary diseases, which could have been desirable to discuss when comparing the higher incidence of respiratory complications among patients with higher scores in the questionnaires. Knowing more about preexisting morbidities might have allowed classifying patients to make comparisons between them in further multivariate analyses.

At the same time, following the requirement in one hospital to closely monitor patients with an apnea-hypopnea index greater than 30, the authors did not find this variable to be a risk factor for postoperative complications. I would want to know what result would have been obtained had those patients been excluded from the analysis.

To sum up, I believe that this study presents some unsatisfactory points that hamper the conclusions given and deserve to be addressed in more detail.

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