Sleep-Disordered Breathing and Postoperative Outcomes

Patient Safety First!

To the Editor:

We read with interest the article by Mokhlesi et al1 in CHEST (September 2013) on the analysis of sleep-disordered breathing (SDB) and postoperative outcomes after elective surgery. They found that despite the increased independent association of SDB with postoperative cardiopulmonary complications, the diagnosis of SDB was not independently associated with increased in-hospital death. Nevertheless, we raise some concerns about the benefits of CT image screening. We look forward to carefully constructed modeling studies that help shed light on these matters.

Frank C. Detterbeck, MD, FCCP
New Haven, CT

Affiliations: From the Department of Surgery, Yale University.
Financial/nonfinancial disclosures: Dr Detterbeck is a member of the International Association for the Study of Lung Cancer International Staging Committee and a speaker in an educational program regarding lung cancer stage classification; both activities are funded by Lilly Oncology (Lilly USA, LLC). He has participated on a scientific advisory panel for Oncimmune (USA) LLC; an external grant administration board for Pfizer, Inc; a multicenter study of a device for Medela; and formerly a multicenter study of a device for Deep Breeze. Compensation for these activities is paid directly to Yale University. Dr Detterbeck served on the executive committee of the Diagnosis and Management of Lung Cancer, 3rd Ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines.

Correspondence to: Frank C. Detterbeck, MD, FCCP, Yale University, 220, Department of Surgery, 330 Cedar St, Thoracic Surgery, New Haven, CT 06520; email: frank.detterbeck@yale.edu © 2013 American College of Chest Physicians. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians. See online for more details.

DOI: 10.1378/chest.13-1350

REFERENCES

1. The group of patients investigated in this study was not homogeneous, since the term SDB includes different sleep disorders, like central sleep apnea and obesity hypoventilation syndrome, that might differently affect postoperative cardiopulmonary complications and in-hospital mortality. Although central sleep apnea prevalence in a surgical population is still unknown, its association with heart and chronic renal failure is not negligible, possibly leading to a different risk for cardiopulmonary complications than OSA alone. However, most of the published studies and recommendations are focused on OSA only.

2. Reported data values on in-hospital mortality by Mokhlesi et al1 are lower than those found in literature. A recent 7-day cohort study reported a 4% inhospital mortality rate after noncardiac surgery.2 Similarly, Finks et al3 for patients undergoing pancreatectomy, reported in the same period a range of mortality from 6.5% to 5.9% as compared with 0.5% found by Mokhlesi et al1 in the group of patients undergoing abdominal surgery. It can be hypothesized that the cohort of patients included in the Mokhlesi et al1 study, although very extensive, might not be representative of the overall surgical population, leading to a systematic underestimation of inhospital mortality.

3. The authors state that SDB disorders were not associated with increased in-hospital mortality but with a higher risk of postoperative cardiopulmonary complications, likely due to upper airway dysfunction.4 According to the Helsinki Declaration on Patient Safety in Anaesthesiology5 any effort should be focused not only on reducing perioperative in-hospital mortality but also on improving long-term outcome and quality of life, as well as ensuring that the patients do not experience adverse events, such as those reported associated with SDB.

We hope that these observations further support the authors’ proposal for a large, prospective, multicenter study aimed at assessing the impact of early diagnosis and treatment of SDB on patients’ outcomes in the postoperative period. In the meantime, let’s not forget that patients’ safety comes first!

Ruggiero M. Corso, MD
Forlì, Italy
Paolo Pelosi, PhD, MD
Genoa, Italy
Giuseppe Insalaco, MD, FCCP
Palermo, Italy
Alberto Braghirolí, MD
Veruno, Italy
Cesare Gregoretti, MD
Turin, Italy

Affiliations: From the Emergency Department, Anesthesia and Intensive Care Unit (Dr Corso), “G.B. Morgagni” Hospital; Department of Surgical Sciences and Integrated Diagnostics (Dr Pelosi), University of Genoa; National Research Council of Italy - Institute of Biomedicine and Molecular Immunology (Dr Insalaco); "S. Maugeri" Foundation, I.R.C.C.S. - Dept. of Pulmonary Rehabilitation (Dr Braghirolí), Scientific Institute of Veruno; and Critical Care Medicine Department (Dr Gregoretti), “Città della salute e della scienza” Hospital.

Financial/nonfinancial disclosures: The authors have reported to CHEST that no potential conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.

Correspondence to: Ruggiero M. Corso, MD, Morgagni-Pierantoni Hospital, Anesthesia, Viale Forlanini 34, Forlì, Italy 47100; e-mail: rmcorso@gmail.com
© 2013 American College of Chest Physicians. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians. See online for more details.

DOI: 10.1378/chest.13-1342
Response

To the Editor:

I thank Dr Corso and colleagues for their thoughtful comments and careful review of our recent study in CHEST (September 2013).1 I agree with their comment that the term sleep-disordered breathing (SDB) encompasses central sleep apnea as well as sleep hypventilation syndromes. However, we excluded patients with International Classification of Diseases, Ninth Revision, Clinical Modification codes for central sleep apnea and obesity hypventilation syndrome from our cohort.

The low in-hospital mortality in our cohort of abdominal surgery is most likely related to the fact that the vast majority of surgeries were elective hemicolecotomies and cholecystectomies. The higher in-hospital mortality reported by the European Surgical Outcomes Study was in part because of inclusion of patients undergoing nonelective surgeries (25% of cases) and significant differences in mortality across various European nations.2 A recent report of 14,962 patients undergoing various types of surgery over a 4-year period at a tertiary care academic medical center in the United States reported a 30-day mortality of 0.64%.3 These investigators also did not find an independent association between high risk for OSA and postoperative mortality.

Caution is necessary when drawing inferences from our data. Although we found important associations between OSA and adverse postoperative outcomes, the cross-sectional nature of our study does not establish the direction of causality. Only well-designed prospective studies will provide insights as to whether OSA increases perioperative morbidity and mortality. We wholeheartedly agree with Dr Corso and colleagues that patient safety should be our primary goal. Although it makes intuitive sense that screening, diagnosing, and treating OSA in the perioperative period is “good medicine,” we have seen time and again that many practices that make “clinical sense” result in no clinical benefit or actually increase morbidity and mortality in large clinical trials.4,5 The cost and burden associated with screening and treating all adult patients for OSA prior to surgery could be overwhelming to any medical system, particularly with the large surgical volumes in most advanced countries. Therefore, empirical evidence is urgently needed to establish whether this strategy does indeed improve perioperative outcomes. As we design clinical studies, we cannot simply assume that perioperative CPAP is universally beneficial or that all patients will be able to adhere to it.6,7 Although I personally believe that perioperative CPAP therapy should be strongly considered in patients with OSA, the burden is on us to generate the high-level evidence needed in the perioperative care of patients with OSA. Since very large multicenter randomized clinical trials may not be feasible, we may have to rely on unique approaches to clinical research to provide clarity to the field (eg, practice-based evidence studies).8

Babak Mokhlesi, MD, FCCP
Chicago, IL

REFERENCES