

Addressing the correspondents' second concern, we did not assess the integrity of fracture healing in the mice exposed to anti-HMGB1; the choice of that reagent was to probe the *mechanism* involved in initiating the innate immune response to surgery. Were we to advocate the use of anti-HMGB1 as a *treatment* we agree that it would be necessary to assess fracture healing as well as other chromatin actions.

We hope that our rebuttal has allayed the correspondents' remaining concerns about our study.

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Competing Interests

The authors declare no competing interests.

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Opioid Use and Sleep Apnea Should Be Considered When Evaluating Postanesthesia Care Unit Desaturations Seen after Intraoperative Use of 100% Oxygen

To the Editor:

This is an interesting article and we congratulate the authors on the elegant prospective randomized study design. The essence of the reported findings was a lower arterial oxygen level in patients with chronic obstructive pulmonary disease at 60 min after extubation within the 100% oxygen group.¹ However, there are no data about other factors that would influence this finding. We would like to know if the authors considered any potential confounding variables. Rose *et al.*² elaborated on such potential factors. It is worthy to note that their study included many different surgeries as well as patients who did not have chronic obstructive pulmonary disease. However, they did report that perioperative risk factors associated with critical respiratory events (hypoxemia, hypoventilation, and/or airway obstruction) in postanesthesia care unit (PACU) include age more than 60, male sex, diabetes mellitus, and obesity. Anesthetic risk factors included opioid or sedative premedication and fentanyl as the sole opioid greater than 2 $\mu\text{g kg}^{-1} \text{h}^{-1}$. Their study concluded that critical respiratory events are relatively rare and there are multiple factors that influence their incidence. Did Kleinsasser *et al.*¹ account for any of these possible factors? It is worthwhile to investigate the causative factors, because critical respiratory events have been associated with longer PACU stays, a higher incidence of cardiac complications while in PACU, and increased frequency of unanticipated intensive care unit admissions; therefore, we commend the authors for investigating this issue within this subset of patients.

Perhaps it is understandable that the type of surgery (carotid artery stenosis) has a low incidence of postoperative pain, but there should be some information for the reader to evaluate whether respiratory depression due to opioid administration was present in one or both arms of the study. We would be interested to know how many patients received opioids in the PACU, as we feel that is a key piece of information to know prior to drawing any valid conclusions. The oxygen partial pressures for the 100% oxygen group were reduced at 15 and 60 min and carbon dioxide partial pressures at 5 and 15 min were shown to be marginally elevated as compared to the 30% oxygen group; however this was not statistically significant. Therefore, inclusion of opioid PACU consumption until 60 min would be helpful in excluding respiratory depression due to opioids as a cause for PACU desaturations. We would also like to know if any of the patients received blocks or local anesthesia infiltration.

Although the authors demonstrated that the demographic variables between the two groups were similar, there was no mention made of comorbidities such as obstructive sleep apnea, which could influence PACU desaturations.³ We would be interested to learn from the authors if comorbidities were considered in the study design. The authors noted that 76 patients were screened and 53 enrolled; however, it appears that the exclusion criteria was based solely on pulmonary function testing and did not take into account comorbid conditions that could potentially confound the results. If obstructive sleep apnea was screened for and those patients excluded, would the results be the same? We would be interested to know if the authors considered any other factors that could have contributed to the results they reported.

Competing Interests

The authors declare no competing interests.

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In Reply:

Thank you for giving us the opportunity to answer the questions raised by Drs. Ifeanyi and Van Meter. In essence, Ifeanyi and Van Meter ask for confounding factors that may have affected the results of our recently published study.¹

Issue: Opioid use in the postanesthesia care unit. No opioids were given in the postanesthesia care unit, however, piritramide 0.1 mg/kg was administered before emergence. Piritramide (not used in the United States) has a slightly lower analgesic potency than morphine, but is less respiratory depressing. We wish to thank Ifeanyi and Van Meter for raising this important point, because the piritramide was not mentioned in the article.

Issue: Comorbidities as obstructive sleep apnea (OSA). No, we did not scan for OSA or other comorbidities and we did not form subgroups since this would have resulted in a substantially higher number of subjects needed—but in a similar answer to our scientific question. If one wanted to find out if a chronic obstructive pulmonary disease patient with OSA displays more profound postoperative desaturations than simple chronic obstructive pulmonary disease patients do—then a specific study could be set up. In our study, we examined oxygen breathing during emergence in chronic obstructive pulmonary disease patients¹—that is: we looked at a physiological function in a certain population rather than examining the population itself. For the latter, a different paradigm and a different standpoint are required.

Issue: Screening for and excluding OSA patients, would the result be the same? Well, we do not know for certain, but an educated guess is *yes, the result would be the same*. First, the patients we examined had a body mass index of 25 to 26, but OSA patients are typically more obese. Second, there were no differences in arterial partial pressures of carbon dioxide at the individual time points indicating comparable ventilatory efficiency, or in another word: homogeneity. Also, because all SDs with carbon dioxide were rather small, single patients with airway obstruction and apnea did not seem to play a role in our study.

Again, we would like to thank you for the opportunity to respond to the letter of Drs. Ifeanyi and Van Meter.

Competing Interests

The authors declare no competing interests.

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