

To conclude, based on clinical and anatomic studies, we are convinced that sub-Tenon blocks produce a more consistent (reproducible) anesthesia than do peribulbar injections. This probably is due to anatomic reasons explained in our previous articles.<sup>4-7</sup> From an anatomic point of view, the difference between both technique groups can be better understood by using an analogy with perimedullary blocks: peribulbar injection can be assimilated to epidural injection, whereas sub-Tenon block corresponds to spinal injection.

This reply is dedicated to Emmanuel Nouvellon, M.D., M.Sc., who passed away just after the publication of the cited review.

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(Accepted for publication March 2, 2011.)

## Don't Forget the Heart When Looking at the Risk of Postoperative Pulmonary Complications

To the Editor:

We read with great interest the recent study by Canet *et al.*<sup>1</sup> In this investigation, based on 2,464 surgical patients, the incidence of postoperative pulmonary complications (PPCs) was 5%, with a related mortality rate at Day 30 of 19.5% (95% CI, 12.5-26.5%).

Predicting risk factors for PPCs is a cornerstone of better patient management. However, reliable knowledge of PPC incidence in a broad, heterogeneous surgical population remains difficult because of nonrepresentative samples and

statistical flaws. Furthermore, definitions of PPC are often not explicit and differ among studies. The recent study of Canet *et al.*<sup>1</sup> has similarities with that of McAlister *et al.*<sup>2</sup> Both investigations were built with a strong statistical methodology and included a large representative surgical population. Yet, the 5% incidence of PPC reported by Canet *et al.*<sup>1</sup> is almost double the 2.7% reported by McAlister *et al.*<sup>2</sup> This higher rate of complications observed by Canet *et al.*<sup>1</sup> could be explained, in part, by the inclusion of emergency cases (14.2%), whereas McAlister *et al.*<sup>2</sup> included only scheduled cases. The risk of PPC increases significantly in emergency cases.<sup>3</sup> In addition, Canet *et al.*<sup>1</sup> included some thoracic surgical cases. Another major difference is related to the use of different PPC definitions. The diagnostic criteria used by McAlister *et al.*<sup>2</sup> were stricter, including supplementary therapeutic action, such as mechanical ventilation for respiratory failure, percutaneous intervention for treatment of pleural effusion, and bronchoscopic intervention for atelectasis.<sup>2</sup>

Nevertheless, the most striking result reported by Canet *et al.*<sup>1</sup> is not the high incidence of PPC *per se* but the high percentage of mortality (19.5%) associated with these cases. It seems difficult to conceive that PPC alone can explain this finding. A previous study by Lawrence *et al.*<sup>4</sup> showed that, in a cohort of patients undergoing major abdominal surgery, 33% who developed PPC also had cardiovascular complications. This result suggests that a significant proportion of patients studied by Canet *et al.*<sup>1</sup> also had cardiovascular complications that were not evaluated and that these complications may have been the cause of death in these patients.

In conclusion, further studies are necessary to examine prospectively comparative incidence, outcomes, and predictors of both types of complications.

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(Accepted for publication March 24, 2011.)