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Does Intravenous *versus* Inhalational Induction of Anesthesia Only Decrease Perioperative Respiratory Events during the Induction Period?

To the Editor:

We read with interest the study by Ramgolam *et al.*,[1] in which they demonstrated that IV induction in children 8 yr and under was associated with fewer perioperative airway complications compared with inhalational induction with sevoflurane and nitrous oxide. We commend the authors for setting up a randomized trial to improve the delivery of anesthetic care for children with higher risk of airway complications. Upon analysis of the complications data, it seems that the majority of the complications occurred during the induction process for the inhalational group (47 events out of a total of 64), while the IV induction group had fewer complications during the induction period. In contrast, the IV induction group had relatively more respiratory complications during the rest of the intraoperative and postoperative periods (26 events out of a total of 39). However, given the manner in which the data are presented (*any* [1 or more] respiratory event), it is impossible to truly decipher the incidence of *any* postinduction perioperative respiratory events from the manuscript. When minimized (difference between *any* unadjusted perioperative and *any* unadjusted induction respiratory events), it appears that there was no statistical difference in postinduction events between the two groups (23/149 [15.4%] *vs.* 17/149 [11.4%], relative risk [RR]: 0.7, 95% CI: 0.4 to 1.3, $P = 0.4$). This calculation is limited, however, by the fact that each patient may have had more than one event over the perioperative course, and the study did not specifically note the rates of *any* postinduction respiratory events. It would have been beneficial to include this analysis in order to discern whether the difference in respiratory events was limited to the induction period.

We agree with the accompanying editorial[2] in that intravenous inductions tend to be much faster than inhalational inductions are, especially when large doses of propofol are used. The rapidity of progression through the excitatory stages to a deep stage of anesthesia during induction may have been the mediating factor in this study (with the actual agents being less important). With this in mind, a possible limitation of this investigation is the particular anesthesia workstation (Primus, Drägerwerk, AG, Germany) that was used for the inhalation inductions. This machine has been shown to have 300% longer wash-in times in simulated test conditions when compared to GE Datex (Germany) machines.[3] The prolonged wash-in time associated with this machine and perhaps a longer excitatory phase of anesthesia may have led to a higher incidence of respiratory complications during induction. These results, therefore, may not be generalizable to institutions that use machines with faster anesthetic wash-in times.

Competing Interests

The authors declare no competing interests.

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