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Laryngeal Mask Airway and Children's Risk of Perioperative Respiratory Complications: Randomized Controlled Studies Are Required to Discriminate Cause and Effect

To the Editor:—We read with interest the study of von Ungern-Sternberg *et al.*[1] evaluating the incidence of adverse perioperative respiratory events in children recovering from an upper respiratory infection (URI). The authors found that the presence of a recent URI within the previous 2 weeks (as reported by their parents) significantly increased the incidence of laryngospasm, coughing, and oxygen desaturation. They also observed that the incidence of these respiratory events was even higher when there were multiple attempts to insert the laryngeal mask airway (LMA). The authors concluded from these observational data that the use of an LMA in children with a recent URI (<2 weeks) enhances the risk of adverse respiratory events, and suggested that "if anesthesiologists allow at least a 2-week interval after a URI, they can safely proceed with anesthesia using an LMA."[1] Although we commend the authors for having reported interesting new information on this complex subject, we are not convinced that their conclusions are entirely supported by data.

Certainly the breadth of pediatric experience has been that children with a URI have a higher incidence of airway-related complications. The current study confirms the expected,[2] *i.e.*, children with infected or recently infected airways are likely to have more respiratory complications compared with children who did not have a history of a recent URI. However, we do not agree with the suggestion of von Ungern-Sternberg *et al.*[1] that the use of an LMA in children with a recent URI enhances the risk of adverse respiratory events. In contrast, it has been shown that children whose airway is managed with an endotracheal tube have a higher incidence of respiratory complications than those managed with an LMA,[3] and it is for this reason that an LMA is frequently used in place of an endotracheal tube. In the study of von Ungern-Sternberg *et al.*, it remains unclear whether the insertion of the laryngeal mask *per se* increased the risk of respiratory events or whether the increased incidence of respiratory events observed with multiple attempts to insert an LMA[1] was simply an epiphenomenon. When multiple attempts were made to place an LMA, was the subsequent adverse respiratory event really related to the insertion of an LMA, or rather due to difficult anatomical conditions (*e.g.*, tonsillar hypertrophy), or light or inadequate anesthesia? The latter suggestions could explain in part the higher incidence of laryngospasm[1] compared with a similar study.[4]

It is always useful to examine methodologic principles before reaching conclusions on cause–effect relations: Randomized controlled trials are usually required. The purpose of randomized controlled trials is to clear the uncertainties surrounding a clinical or research issue and involves isolating the "treatment" and "end result" variables from external influences.

In the current study, we are not sure whether the conclusion should be drawn that "if anesthesiologists allow at least a 2-week interval after a URI, they can safely proceed with anesthesia using an LMA"[1] because children were not cancelled and rescheduled 2 weeks after their URI. This is an especially important detail because 3.6, 9.0, and 6.4% of the children considered as having no URI in the study of von Ungern-Sternberg *et al.* in fact had fever, dry cough, or wet cough, respectively. Therefore, it could be argued that a control group without a URI was missing in this study,[1] and comparisons of perioperative respiratory complications might have been made instead between children with URIs of different severities.

The specific question that remains unanswered is: Does postponing anesthesia by 2 weeks after a URI result in fewer airway-related complications? Such a study would probably require larger numbers of children to be included and would definitely need to be tightly controlled. In fact, it takes 6–8 weeks for airway irritability to resolve after a URI, by which time many children will have another URI.[5] Moreover, waiting several weeks after a URI seems not to consistently reduce the incidence of perioperative respiratory complications.[6] From a *clinical* standpoint, we support the authors' view that children who have not had a URI within the past few weeks may be safely anesthetized despite the perhaps unavoidably increased risk.

Therefore, the URI dilemma[6] remains an issue. Randomized controlled studies are required to determine the optimal point of time after a URI for administering anesthesia and to learn how to optimize the technique for airway management.

Matthias Eikermann, M.D., Ph.D.,* **Charles J. Coté, M.D.**
*Massachusetts General Hospital and Harvard Medical School, Boston, Massachusetts. Universitätsklinikum Essen, Essen, Germany. meikermann@partners.org

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