Analysis of Laryngoscopy Attempts in Infants: Comment

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To the Editor:

I read with great interest the retrospective cross-sectional cohort study by Galvez *et al.*,[1] addressing the incidence of hypoxemia and bradycardia and the need for multiple direct laryngoscopy attempts in neonates and infants who were classified as American Society of Anesthesiologists (Schaumburg, Illinois; ASA) Physical Status I or II patients at the authors' center. Their findings of the incidence of multiple direct laryngoscopy attempts (16%) and associated hypoxemia in patients younger than 12 months support other retrospective and observational studies[2,3] suggesting that being an infant or neonate is an independent predictor of difficult direct laryngoscopy.

ASA Physical Status, the most widely used preoperative risk stratification system, has been shown to be marred by high interoperator variability, including in pediatric patients.[4,5] ASA Physical Status I patients are considered healthy individuals with no anticipated added risk to the low incidence of the inherent risks of anesthesia management. However, a high percentage of pediatric patients who had been initially assigned to that category were subsequently reclassified as ASA Physical Status II patients in a prospective analysis.[5] A highly reliable and universally accepted preoperative stratification system for pediatric patients has not been routinely implemented in practice yet, and most of us still use the ASA Physical Status classification for that patient population. Although the classification considers age as unrelated to perioperative risks, based on the above data, age clearly does impact such risk for otherwise healthy infants and neonates.

I believe that mounting evidence supports age as a predictor of difficult airway management in pediatric anesthesia. As long as we continue to use the preoperative ASA classification system in pediatric anesthesia, we could reduce some interobserver variability if we agreed that healthy children younger than 12 months of age are ASA Physical Status II patients based on the incidence of perioperative complications associated with their developmental status.

Competing Interests

The author declares no competing interests.

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In Reply:

We thank Dr. Horvath for his correspondence[1] regarding our study of the association between infant laryngoscopy attempts and hypoxemia.[2] We agree that infants experience higher risks of respiratory adverse events during

tracheal intubation than adults. Although the American Society of Anesthesiologists (Schaumburg, Illinois; ASA) provides definitions and clinical examples to guide the use of the ASA Physical Status system, Dr. Horvath states correctly that a patient's age is not considered.[3] Dr. Horvath's suggestion of updating the definitions for the ASA Physical Status system for pediatric patients is worthy of discussion. Assigning ASA Physical Status II to healthy infants because of higher rates of adverse events during tracheal intubation might be problematic. First, the purpose of the ASA Physical Status classification system is to communicate the patient's medical comorbidities, not their anesthetic risk. Second, if age were considered a comorbidity then one would have to assign a higher status for patients at both extremes of age, not just infants. Finally, a rapid sequence induction in a child increases the risk of hypoxemia during laryngoscopy, yet ASA Physical Status is not typically adjusted because of a plan for rapid sequence induction. There are many clinical scenarios wherein infants may be classified appropriately as ASA Physical Status I, such as a 3-month-old patient undergoing a circumcision. Although direct laryngoscopy can be challenging in infants, there are alternatives for establishing an airway, including supraglottic airways and video laryngoscopy, that may be less challenging than direct laryngoscopy.

In summary, we share Dr. Horvath's concerns about the need to document and communicate the higher incidence of adverse events in infants; however, we do not feel that ASA Physical Status is the right tool. We welcome further ideas to address this in the future.

Competing Interests

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Priming Cardiopulmonary Bypass in Pediatric Surgery: Comment

To the Editor:

We read with great interest the article of Dieu *et al.*[1] regarding cardiopulmonary bypass (CPB) priming strategy in pediatric cardiac surgery. In this double-blind randomized controlled study, the authors reported that priming with fresh frozen plasma or balanced crystalloids does not result in a different risk of postoperative bleeding and transfusion of allogeneic blood components. The authors clearly have to be congratulated for addressing a very relevant clinical question in a study with a high level of methodologic quality. However, several points need to be taken into account when interpreting the reported results.

First, the studied population is probably not at a high risk of postoperative bleeding requiring the transfusion of hemostatic agents such as fresh frozen plasma. Indeed, most patients enrolled in the trial were small children (above 1 yr of age) undergoing low- to moderate-risk surgery (Risk Adjustment for Congenital Heart Surgery score, 1 to 3), whereas neonates and infants with cyanotic disease have been shown to be especially at higher risk of significant postoperative blood loss.[2] The results of the present study do not help to define the best CPB priming strategy in these high-risk populations.

Second, the authors decided to treat all the blood remaining in the circuit after CPB weaning with a cell saver, eliminating platelets and coagulation factors in the autologous blood retransfused to the patients. The use of cell salvage has been recommended to reduce perioperative transfusion.[3] However, to our point of view, because one of the primary outcome of this study was postoperative bleeding, it would have been more rational to use ultrafiltration and/or modified ultrafiltration to reduce the positive fluid balance at the end of surgery, thus keeping coagulation factors in the autologous blood returned to the children. Also, the authors stated that the cell salvage blood at the end of the procedure