Controversies in Pediatric Anesthesia

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Upper respiratory tract infections (URI) are common in toddlers and infants and are the main reason for visits to the emergency room or pediatricians’ offices. This is a large population that presents for routine surgery in the pediatric population. In recent years, with the advent of more potent influenza viral seasons we have seen many children affected with viral infections especially during the winter months. There is an association with the presence of reactive airway disease in children who are recovering from a recent cold or URI.

Preoperative evaluation: Preoperative evaluation should consist of listening to the child’s lungs for rhonchi or wheezing. The potential for a lower respiratory tract infection after a URI is relatively common in children. It is also important to determine if there is a history of asthma or wheezing. Children who are exposed to common colds are at greater risk for reactive airway disease and can hence have a greater propensity for wheezing or bronchospasm during anesthesia. (Table 1)

Many attempts have been made to prevent side effects during the presence of a URI. This includes the use of bronchodilators and antisialagogue such as glycopyrolate or atropine. In one study, the group that received glycopyrolate had the advantage of earlier discharge from the postanesthesia care unit (PACU) as opposed to the group that did not receive the drug. There were no significant differences in adverse events in children in the study group as opposed to the placebo group (45.2% vs 37.5%).

Induction of anesthesia: A mask induction is preferred because this allows for a smooth induction. Using induction drugs such as ketamine can lead to more secretions and potential airway obstruction. As mentioned earlier, the use of glycopyrolate or atropine has not demonstrated better outcomes. Many of these children may be presenting for minor procedures such as myringotomy with a pressure equalizer tube placement who may not require the need for IV access. It is imperative that the anesthesiologist is prepared for the potential of rapid intervention in the event the patient develops laryngospasm.

Airway intervention: URI is frequent in children who are presenting for adeno-tonsillectomy. The potential for laryngospasm and desaturation after extubation has prompted research into alternatives other than endotracheal tubes for the procedure. The flexible laryngeal mask airway has been successfully used in our institution for adenotonsillectomy as an airway device. There was no added benefit for the use of supraglottic devices compared to an endotracheal tube in a large retrospective study when contrasted to a previous study that demonstrated superiority of the laryngeal mask airway over an endotracheal tube. There has been ongoing debate as to whether extubating a patient with a URI under deep anesthesia may be more beneficial to extubating while wide awake. In an interesting randomized controlled trial, the investigators found no difference in the incidence of complications in either group. There was an increased incidence of coughing in children who were extubated awake versus those extubated under deep anesthesia (60% in wake vs. 35% in deep anesthesia extubation). However, the incidence of airway obstruction in deeply anesthetized patients was more frequent than awake extubation (26% vs. 8%).

Postoperative Management: It is important to recognize that children with URIs may be prone to desaturation in the postoperative period. In addition, they may be prone to bronchospasm, stridor or persistent coughing. It is important to keep this in mind while dealing with these children in the PACU because they may require additional postoperative observation.

REFERENCES