The Use of Modern Inhaled Anesthetics

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The choice of an anesthetic technique for the pediatric patient should ensure smooth induction, quick emergence at the end of surgery, prompt recovery in the PACU, and rapid discharge with no or minimal pain and/or PONV.

Inhalation induction has long been favored by children and pediatric anesthesiologists. For over three decades, halothane has been the standard inhalational induction agent in pediatrics. It offered reasonably fast onset with minimal airway irritation. Despite some concerns over its tendency to slow the heart rate and, in the presence of hypercarbia, predisposes the child to develop arrhythmias; it continued to be the gold standard against which other inhalational agents had to be compared.

When isoflurane became available, it gained wide acceptance in pediatric practice. Compared to halothane, it has less arrhythmogenic potential in the presence of epinephrine, and less increase in cerebral blood flow. There is less concern about hepatic toxicity with repeated exposure in older children and adolescents. Inhalational induction with isoflurane, however, is more likely to result in increased secretions, laryngospasm, breath-holding and coughing than halothane. Many pediatric anesthesiologists, therefore, continued to use halothane for induction of anesthesia in children, and then change to isoflurane for the remainder of the procedure. In the author’s practice, this sequence continues to be used, but with the two new inhaled agents; sevoflurane for induction, and desflurane for the maintenance of anesthesia. This lecture will explain the rationale for this practice. It will also emphasize that although sevoflurane and desflurane have solved many of the problems associated with halothane and isoflurane, they have their own set of problems, and they are far from being the ideal anesthetic agents.

References


