

Letter to the Editor

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Pediatric Emergence Agitation

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Emergence Agitation (EA) is still remaining as a major problem during the early stage of recovery from general anesthesia in children. EA was first reported in 1960's and it has been considered as a mental disturbance during recovery from general anesthesia which consists of hallucinations, delusions and confusion manifested by moaning, restlessness, involuntary physical activity and thrashing about in the bed.¹ The incidence of EA is variable and can reach to 80%.²

Pre-school aged children, preoperative anxiety, inadequate pain control, type of the surgery (especially ophthalmological and otorhinolaryngological), anesthesia method are defined as the risk factors for EA in children.³⁻⁷ Sevoflurane and desflurane are the preferred inhalational anesthetic agents for the induction of anesthesia in children. However, these agents have been reported to increase the ratio of EA because of their low blood/gas partition coefficients.⁸ Although emergence times from propofol and sevoflurane are similar, EA is frequently observed in sevoflurane based anesthesia. In recent studies elevation of intraserebral glucose and lactic acid concentrations were observed with Magnetic Resonance Spectroscopy (MRS) with the use of sevoflurane.⁹ Also epileptogenic activity of sevoflurane has been reported.¹⁰ However the exact mechanism of EA has not been understood yet.

Different anesthetic agents such as opioids, midazolam, ketamine, alpha-2 agonist sedatives and nonsteroidal anti-inflammatory drugs have been used to prevent EA. Low dose ketamine added to propofol was found effective in the prevention of EA in children with a history of EA with propofol Total intravenous anaesthesia (TIVA).¹¹ Hadi et al Found that ketodex (lowdoseketamine 0,15 mg/kg followed by dexmedetomidine 0,3 µ/kg IV) reduced the incidence and severity of EA in children undergoing adenotonsillectomy following sevoflurane based anesthesia and provided smooth extubation.¹² µ-opioid agonists were found effective in decreasing the incidence of EA under sevoflurane anesthesia but postoperativenausea and vomiting were increased.¹³ In a study by Fang et al, the efficacy of midazolam, dexmedetomidine, ketamine, fentanyl, and propofol were compared for the prevention of sevoflurane-related EA in children with placebo. They found that all of these agents have decreased the incidence of EA but dexmedetomidine was considered the most effective agent in their study.¹⁴ In a study by Rosen et al, 42% of the anesthesiologists declared that EA was a significant problem at their institution and propofol was found the most common anesthetic agent used to prevent and to treat EA compared with the other medications.¹⁵

EA is a major problem in the postoperative period that may cause physical harm to the patient and can be disturbing to the parents and nursing staff in their recovery room. There is not defined specific treatment and optimal anesthetic technique in current practice. For this reason further studies are needed to understand the mechanism of EA and improve the treatment.

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