

Chapter 14

Incidence of Emergence Delirium in Pediatric Patients on Comparative Study of Ketamine IV Induction vs. Sevoflurane Inhalation Induction

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ABSTRACT

To better understand the occurrence of emergence delirium (ED) in the paediatric population, this prospective observational study compared two anaesthesia induction techniques: intravenous (i.v.) ketamine and inhalational sevoflurane. This study included two hundred paediatric patients aged two to twelve who scheduled elective surgical procedures. Two groups of patients were randomly assigned, and each group underwent an intravenous ketamine induction or an inhalational sevoflurane induction. The “Paediatric Anaesthesia ED Scale (PAED)” was the primary outcome measure for ED occurrence. Secondary outcomes included time to emergence, challenges during emergence, and the frequency of postoperative vomiting and respiratory problems. Compared to the ketamine induction group (30%), the sevoflurane induction group had a much lower incidence of ED (12%). Sevoflurane-induced

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INTRODUCTION

During the post-anesthetic recovery phase, “emergence delirium (ED),” often known as “waking up wild,” is a common and disruptive occurrence that affects the paediatric population. Children who have had surgery or medical operations requiring general anaesthesia may experience this unpleasant phenomenon, which is characterised by a sudden and acute state of agitation, bewilderment, disorientation, hallucinations, inconsolability, and uncooperative behaviour. In the medical community, these unsettling phenomena have sparked many worries and presented difficulties for paediatric carers, anaesthetists, and surgeons (Albo Hay Allah & Alshamsi, 2022). In addition to negatively affecting the child’s immediate postoperative experience, ED raises the possibility of complications like unintentional self-harm, elevated stress levels for the medical staff, and, in certain situations, a postponed return to the family home (Sikich & Lerman, 2004).

It is critical to comprehend the variables that lead to ED and to develop practical preventative and treatment plans for the condition. Within this framework, the selection of an anaesthesia induction technique has been identified as a critical factor impacting the prevalence of ED (Al-Nayili & Albdiry, 2021). In order to better understand the prevalence of ED in children, this study compares two distinct anaesthesia induction techniques: inhalational induction using sevoflurane and intravenous induction using ketamine (Dahmaniet al., 2010). This research seeks to improve postoperative outcomes and paediatric anaesthesia care by clarifying the major factors that affect the occurrence of ED and providing guidance on choosing the most appropriate induction approach (Aouad et al., 2007).

Prevalence and Clinical Importance of ED

The phrase “ED” refers to a distinct clinical phenomenon that is defined by a collection of behavioral and psychological abnormalities that pediatric children display when they awaken from general anaesthesia (Ghozali, 2022). Many symptoms might accompany these phenomena, such as agitation, confusion, hallucinations, sobbing, flailing, and, in severe situations, violent conduct. When anaesthesia is stopped, or within the first half hour after extubation, ED usually happens in the initial postoperative phase. The kid may show extreme fear or rage, be incoherent, and be unable to recognize their surroundings or carers (Lee et al., 2010).

Depending on the patient demographic, age, and kind of operation or treatment, reported rates of ED in the paediatric population range from 10% to 80%, indicating a reasonably high prevalence. The diverse range of reported prevalence can be ascribed to multiple reasons, such as the heterogeneity of research populations, variations in assessment instruments, and disparate definitions of eating disorders (Al-Nayili & Haimd, 2024).

Even with its significant prevalence, ED is still a little-known and poorly understood condition. It can lead to serious difficulties for medical professionals, such as nurses, surgeons, and anaesthetists (Altaee et al., 2020). Children with ED often behave in disturbing ways that might interfere with postoperative care, add to the workload of medical staff, and lower the standard of care given (Vlajkovic & Sindjelic, 2007).

Beyond the difficulties that arise right after surgery, ED may have long-term effects. Children who suffer emotional and psychological distress during ED episodes may have long-lasting effects that could result in behavioral problems or post-traumatic stress disorder (PTSD). As a result, it is critical to look into the underlying causes of ED and practical management and prevention techniques (Dayekh & Al-Nayili, 2022).

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