

The Effect of Remifentanil on Emergence Agitation after Sevoflurane Anesthesia in Children: A Meta-Analysis

Authors : Jong Yeop Kim, Sung Young Park, Dae Hee Kim, Han Bum Joe, Ji Young Yoo, Jong Bum Choi, Sook Young Lee

Abstract : Emergence agitation (EA) is commonly reported adverse events after sevoflurane anesthesia in pediatric patients. The efficacy of prophylactic remifentanil, one of mu opioid agonist, in preventing EA is controversial. This meta-analysis assessed the effectiveness of remifentanil to decrease the incidence of EA from sevoflurane anesthesia in children. We searched for randomized controlled trials comparing sevoflurane alone anesthesia with sevoflurane and remifentanil anesthesia to prevent EA in the Cochrane Library, Embase, Pubmed, and KoreaMed, and included 6 studies with 361 patients. The number of patients of reporting EA was summarized using risk ratio (RR) with 95% confidence interval (CI), with point estimates and 95CIs derived from a random effects Mantel-Haenszel method. Overall incidence of EA was about 41%. Compared with sevoflurane alone anesthesia, intravenous infusion of remifentanil with sevoflurane significantly reduced the incidence of EA (RR 0.53, 95% CI 0.39-0.73, $P < 0.0001$), (heterogeneity, $I^2 = 0$, $P = 0.42$). This meta-analysis suggested that continuous infusion of remifentanil could be effective in decreasing the EA of about 47% after sevoflurane anesthesia. However, considering limitations of the included studies, more randomized controlled studies are required to verify our results.

Keywords : emergence agitation, meta-analysis, remifentanil, pediatrics

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