

Original Paper

Comparison of post-operative nausea, vomiting and laryngospasm in children using control ventilation and spontaneous respiration anesthetic methods

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Abstract

Background and Objective: Post-operative nausea vomiting (PONV) and laryngospasm are the most common of complication following surgery. This study was conducted to compare the incidence of laryngospasm and PONV after pediatric infra umbilical surgery using two anesthetic methods: control ventilation and spontaneous respiration.

Materials and Methods: This double-blind clinical trial study was conducted on 192 children with 2-7 year-old undergoing infra-umbilical surgery of ASA-I class with the estimated operation period of an hour in Tehran pediatric hospital, Tehran-Iran during 2009-10. The patients were randomly divided into two groups: controlled ventilation and spontaneous respiration. After anesthetization, Atracurium was injected to the control ventilation (CV) group and anesthesia continued with mechanical ventilation. For the patients of the second group (spontaneous respiration/SR), after the gradual increase of the dose of halothane and certainty of the optimal depth of anesthesia, patients were intubated to allow spontaneous respiration. After intubation, all patients were anesthetized with Halothane 1-2% and the N₂O/O₂. The rate of nausea, vomiting, laryngospasm, excessive post-operative discharge was recorded. Data were analyzed using SPSS-13, student's t-test, chi-square and Fisher's exact tests.

Results: Post-operative nausea was non significantly higher in CV group (8%) than SR (6.52%). The rate of vomiting was higher in CV (16%) as compared to SR group (2.17%). (P<0.001, RR=8.57, CI: 1.91-38.41). The rate of laryngospasm at the end of the surgery was higher in CV group (15.21%) as compared to SR group (26%) (P<0.02, RR= 0.94, CI: 0.05-1.77). The rate of excessive discharge at the end of the surgery was significantly higher in CV group (52%) in comparison with SR group (11.95%) (P<0.001, RR=0.94, CI: 0.05-1.77).

Conclusion: This study showed that in infra-umbilical surgeries in a period of less than an hour the incidence of post-operative vomiting and laryngospasm is higher in control ventilation group than spontaneous respiration group, which might be due to the injection of neostigmine to counter-act the effects of muscle relaxants.

Keywords: Nausea, Vomiting, Laryngospasm, Pediatric anesthesia, Control ventilation, Spontaneous respiration

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