Ketamine and Atropine for Pediatric Sedation: A Prospective Double-Blind Randomized Controlled Trial

Payman Asadi, MD,* Hamed-Basir Ghafouri, MD, Mohamadreza Yasinzadeh, MD, Seid Mohamad Hosseini Kasnavieh, MD, and Ehsan Modirian, MD, MPH

Introduction: Sedation in children can be a challenge for emergency physicians, which demands for selecting an effective medication with few complications and good analgesic effects. This study has been performed to evaluate the adverse effects of ketamine while using either atropine or placebo in emergency departments.

Methods: This is a prospective randomized controlled trial involving 200 patients with age ranging between 2 and 15 years, who need a painful procedure. Participants randomly were divided into 2 groups both treated by ketamine (1 mg/kg intravenously administered); group 1 received excessive intravenous atropine (0.01 mg/kg), whereas distilled water was given to group 2 as placebo. Adverse effects and duration of the treatments were recorded.

Results: From March to September 2010, 200 of 218 eligible patients were enrolled. The mean (SD) age of patients in the intervention group was 7.0 (3.6) years that showed no statistical difference with the control group (age range, 2Y15 years; mean, 7.1 [3.8] years). The mean procedure and sedation time between the intervention and placebo groups were not significantly different (P = 0.919 and 0.783, respectively). Several differences between the intervention and placebo groups were noted including nausea and vomiting, but only the difference in hypersalivation was statistically significant (12% vs 28%). Low oxygen saturation was reported only in 2% of the participants, whereas none of the children experienced apnea or laryngospasm during the sedation process.

Conclusions: Atropine added to ketamine significantly reduces hypersalivation without producing any adverse effects on the procedure duration or success rate.

Key Words: sedation, ketamine, atropine