

Comparison of either separated or combined intranasal dexmedetomidine and oral midazolam on anesthesia inhalation induction in children

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Abstract

Abstract Background and Purpose: Anesthetic inhalation induction could be one of the most stressful experiences for children. While, either oral midazolam or nasal dexmedetomidine as premedication remains less than ideal. This study was to assess the efficacy and safety when those two premeds were applied together in children undergoing minor surgeries. **Experimental Approach:** One hundred and thirty-eight children aged 2-6 years old were randomly allocated into three equal groups based on the premedication routes: Group M with oral midazolam 0.5 mg.kg⁻¹, Group D with intranasal dexmedetomidine 2 µg.kg⁻¹ and Group MD with intranasal dexmedetomidine 1 µg.kg⁻¹ plus oral midazolam 0.5 mg.kg⁻¹, respectively. The primary outcome was the satisfactory compliance rate during inhalation induction with sevoflurane using induction compliance checklist. The secondary outcomes were the preoperative m-YPAS scores when the children arrived in the holding area, sedation level, behavior scores, parental separation anxiety scores, mask acceptance scale (MAS), the incidence of emergence agitation, recovery time and other adverse events. **Key Results:** Subjects in Group MD showed higher satisfactory compliance rate (n=38, P=0.0049) and satisfactory MAS (n=38, P=0.0049) on anesthesia inhalation induction. Compared to the Group M and D, Subjects in Group MD had significantly shorter onset time to achieve the satisfactory sedation level (P<0.001) and higher sedation score at 20 and 30min after drug administration (P<0.001). **Conclusion and Implications:** We conclude that combined intranasal dexmedetomidine 1µg.kg⁻¹ and oral midazolam 0.5 mg.kg⁻¹ significantly improved the compliance during inhalation induction with sevoflurane, and had quicker onset to reach satisfactory sedation level in children.

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