A retrospective study of dosing and efficacy of buccal dexmedetomidine sedation for pediatric MRI.

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Introduction: Dexmedetomidine (DEX) has been used increasingly for sedation in children undergoing nonpainful procedures. Intranasal, intramuscular and intravenous routes have been used successfully for pediatric magnetic resonance imaging (MRI) studies. We designed this retrospective study to determine efficacy and safety of buccal DEX for pediatric MRI sedation.

Methods: Medical records were reviewed of children who received buccal DEX for MRI sedation with or without other sedative medications at the American Family Children's Hospital Sedation Clinic in 2015 and 2016. Patient demographics, diagnosis, adverse events, and outcome were reviewed.

Results: A total of 140 children received buccal DEX with or without other sedative medications for MRI. Mean age of the cohort was 9.8 ± 2.6 years (range 5-18.7). Buccal DEX dose administered was mean 2.24 ± 0.42 mcg/kg (range 1.0-3.1). Of the 140 children, 54 had satisfactory sedation with buccal DEX as the sole sedative; 62 patients received satisfactory sedation when buccal DEX and oral midazolam (mean 0.33 ± 0.08 mg/kg, range 0.2-0.6) were given together. Of the 140 children, 116 (83%) had satisfactory sedation without the need of IV sedatives while 24 (17%) required IV sedatives to achieve satisfactory sedation. Three of 116 patients (2.6%) who received only enteral sedatives had a sedation related adverse event (1 vomiting, 1 hypoventilation and 1 vasovagal episode); all completed their MRI successfully. All study patients completed their MRI successfully except 2; one who had propofol-related severe upper airway obstruction and 1 patient who had MRI contrast anaphylaxis.

Conclusions: in a selected population of pediatric patients buccal DEX in combination with oral midazolam provides adequate sedation for most MRI studies with few adverse effects.