

Double-blind Randomized Controlled Trial of Intranasal Dexmedetomidine Versus Intranasal Midazolam as Anxiolysis Prior to Pediatric Laceration Repair in the Emergency Department.

Neville D, Hayes K, Ivan Y, McDowell E, Pitetti R. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine* [serial online]. August 2016;23(8):910-917.

Question:

How does intranasal dexmedetomidine (Precedex) compare to intranasal midazolam (Versed) when it comes to anxiolysis for laceration repair in children?

Background:

Intranasal midazolam is known to cause significant discomfort as it causes a burning sensation at the nasal mucosa, and requires a relatively large intranasal volume of medication to meet the dosage requirement. Intranasal dexmedetomidine, however is not known to cause irritation of the nasal mucosa, and requires a smaller volume of medication, however onset of action is slower (~25 min for dexmedetomidine vs ~10 min for intranasal midazolam)

Methods:

Forty patients between ages 1-5 with lacerations <5cm were enrolled as long as they had no known allergies to study medications, and were stable without other major injuries. Subjects were randomized to 0.4 mg/kg midazolam or 2 mcg/kg dexmedetomidine via the intranasal route (double blind study). The mYpas scoring tool was used to evaluate anxiety, and contains 5 categories: Activity, Vocalizations, Emotional Expressivity, State of Arousal and Use of Parents. The score was evaluated at multiple time points, including baseline, at positioning and during washout and closure. Two independent reviewers scored the patient and their scores were averaged. On this scale, the scores can range from 23.3 to 100 (high = more anxious), and scores <30 are considered to be “non-anxious”. Parents were also asked to evaluate their perceived anxiety of their child using a visual analog scale.

Results:

Mean age was 3.3 years. Median anxiety score at time of positioning of patient for the procedure was 23.3 in the dexmedetomidine group (technically non-anxious on average) and 36.3 in the midazolam group. 70% were non-anxious at time of positioning in the dexmedetomidine group versus 11% in the midazolam group. At positioning, washout and first stitch, the dexmedetomidine group maintained a statistically significant advantage with regard to the percentage that remained non-anxious. No differences seen in complication rate, with only two minor complications in the midazolam group—vomiting and unsteadiness. No patients required conversion to procedural sedation or invasive maneuvers.

Bottom Line:

Intranasal dexmedetomidine is likely more effective than intranasal midazolam for anxiolysis for minor pediatric procedures, however the later time of onset (25 min versus 10 min) is a possible barrier to routine use in the ED. This could also be looked at as an option for adults in the ED.
