



PIC QUESTION OF THE WEEK: 08/22/05

Q: Can triazolam be used as a pre-operative sedative in children prior to dental procedures?

A: Children undergoing dental procedures typically experience anxiety along with uncontrollable behavior. In these situations it is necessary to sedate the child. Traditionally, chloral hydrate and diazepam have been the oral sedatives of choice in pediatric dentistry. Triazolam (Halcion®), a rapid-acting benzodiazepine, has also been evaluated for this indication. One advantage of triazolam is its tendency to produce less respiratory depression than chloral hydrate. Compared to diazepam, triazolam has a much earlier onset of action and shorter elimination half-life, thus allowing convenient in-office dosing. In one study, triazolam (0.025 mg/kg) suspended (1 mg/ml) in grape Kool-Aid® was administered orally as a pre-procedure sedative and produced positive results. Another trial in 3-to-5-year-old children given a dose of 0.03 mg/kg of oral triazolam 30 minutes before sitting in the dentist's chair, resulted in better behavior and less time for the procedure when compared to placebo. Sublingual administration of triazolam may be more practical in children who have difficulty swallowing medication. Triazolam is metabolized by cytochrome P450-3A4 that is present in both the liver and small intestine. The sublingual route may reduce gastrointestinal first-pass metabolism, thus offering pharmacokinetic advantages. Currently there is no dosage formulation that permits weight-based dosing of triazolam in small children. A dosage range of 0.011-0.015 mg/kg was used to determine approximate tablet strength during one clinical trial. Tablets of 0.25 mg and 0.375 mg have been used to provide the calculated dose. Triazolam tablets dissolve sublingually in about four minutes and sedative effects are typically noted shortly thereafter. Adverse effects of sublingual triazolam include ataxia, amnesia, and altered visual acuity. Cooperation of the child and proper administration of the drug are necessary for optimal response. Preliminary studies support a possible role for triazolam as a pre-operative sedative for children prior to dental surgery. Additional information is necessary to confirm its appropriate dosage, timing, and route of administration.

References:

- Raadal M, Coldwell SE, Kaakko T, et al. A randomized clinical trial of triazolam in 3-to-5-year-olds. *J Dent Res* 1999;78:1197-1203.
- Tweedy CM, Milgrom P, Kharasch ED, et al. Pharmacokinetics and clinical effects of sublingual triazolam in pediatric dental patients. *J Clin Psychopharmacol* 2001; 21:268-72.
- Taketomo CK, Hodding JH, Kraus DM. *Pediatric dosage handbook*, 11th edition. Hudson (OH):Lexi-Comp;2004.

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