

A Toddler's Toxic Taste: Bradycardia after Brushing with Brimonidine

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Background: Brimonidine is a central alpha-2 adrenergic agonist. Mirvaso® (Brimonidine) Topical Gel 0.33% is used for the treatment of facial erythema (rosacea) in adults. Toxicity from therapeutic doses of optic formulations of brimonidine has been reported, however reports of exposures to dermal products are rare.

Hypothesis: Accidental ingestions of Mirvaso® (Brimonidine) Topical Gel 0.33% cause significant toxicity in children.

Methods: This is a single-patient chart review from a regional poison center and bedside toxicology consultation.

Results: A 4 year-old boy accidentally used Mirvaso® topical gel 0.33% to brush his teeth. The drug had been given to the child's parent in clinic as a free sample. He spat out the "toothpaste" and his parent estimated only a taste was ingested. He was asymptomatic after ingestion with no oral pallor and went to school. However, 45 minutes after exposure he started having somnolence and appeared pale. The school nurse measured a blood pressure at 70/40 mmHg and called EMS. They delivered bag mask ventilation during transport. On arrival to the emergency department, he was pale, limp, with GCS of 14 and capillary refill delay. Vitals were as follows: heart rate 69 beats/min, blood pressure 76/48 mmHg, respiratory rate 18 breaths/min, oxygen saturation 99% on 4L/min nasal cannula. He was given 10 mg of IV naloxone with no response. Atropine 0.3 mg IV was administered with a rise to 149 beats/min in heart rate and BP rise to 119/53 but equivocal change in mental status. He was transferred to a pediatric intensive care unit and continued to have bradycardia and somnolence that slowly improved. He did not require repeat medication and toxicity resolved approximately 12 hours after ingestion.

Discussion: Exploratory ingestions and therapeutic doses of optic brimonidine products have led to systemic toxicity in young children. The dermal preparation has the same toxic potential and should be considered dangerous in even taste-size doses in children. Free samples given in clinic should be accompanied by clear safety instructions.

Conclusion: Very small ingestions of brimonidine 0.33% topical formulation can cause significant toxicity in children.