Complication of Intranasal Midazolam

To the Editor.— The recent article by Theroux et al.1 on the use of intranasal midazolam was interesting. The purpose of this letter is to share our experience regarding a complication associated with the use of this drug.

The need for an ideal sedative for pediatric patients undergoing diagnostic and short surgical procedures is well established. In the past 5 years, the literature is replete with reports on the efficacy, ease of administration, and tolerance of intranasal midazolam.2-7 Currently, our group is also evaluating the efficacy of intranasal midazolam in pediatric patients (aged 2 to 12 years) undergoing upper endoscopy. Soon after beginning enrollment, however, it became apparent that intranasal midazolam causes intense burning, irritation, and lacrimation on instillation into the nares. The degree of discomfort caused by the midazolam was unanticipated because few investigators, including Theroux et al, have reported this to be a significant problem, a point that we find difficult to understand. This adverse effect may result in patient discomfort which in some cases may exceed that caused by venipuncture. In addition, investigators may become unblinded, thereby making the unbiased evaluation of efficacy impossible. Perhaps in the study conducted by Theroux et al, nasal irritation and discomfort were masked by preexisting pain, anxiety, and fright resulting from the nature of the injury (laceration) and the threatening emergency department environment in which the study was performed.

The irritation caused by the intravenous formulation (midazolam 5 mg/mL) used intranasally may be due in part to the pH (approximately 3), the preservative (1% benzyl alcohol), or perhaps the drug itself. Despite this adverse effect, we strongly believe in the merit of this route of midazolam delivery, and we therefore have continued our study with a modified methodology. All patients are now being given 4% topical lidocaine delivered via a 15-mL nasal spray bottle (Apotheay Products, Inc, Burnsville, MN) before the administration of midazolam. We have found that the administration of two sprays in each nostril of lidocaine is effective in reducing the irritation while not affecting the efficacy of midazolam. We have determined that each spray delivers approximately 0.05 mL or 2 mg of lidocaine/spray. If the average weight of the youngest eligible patient is 10 kg (2 years old), the maximum dose of intranasal 4% lidocaine would be 0.8 mg/kg. This dose is within the manufacturer’s recommended adult dosing range of 0.6 to 3 mg/kg and significantly less than the maximum dose of 4.5 mg/kg for adults and children.8

Because the objective in choosing this route of administration is based on the priority of assuring patient comfort, those wishing to use intranasal midazolam should be aware of this undesirable effect. If patients are experiencing significant discomfort during the intranasal administration of midazolam (which may take 1 to 2 minutes depending on the volume being administered), the rationale in choosing this route of administration may be defeated. We recommend that more attention be given to this potential adverse effect, both for patient comfort and to maintain the double-blind feature of clinical studies.

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Hair Burning Syncope

To the Editor.— We read the report “Hair-Grooming Syncope Seizures” by our colleagues Drs Lewis and Frank (Pediatrics. 1993;91:836-838), and waxed nostalgic regarding a cluster of similar cases which we aptly named “hair burning syncope.” During an 18-month period in the late 1980s, several girls came to our outpatient clinic and emergency departments with generalized seizure activity following or in the midst of hair grooming using a hot curling (or uncurling) iron. After the first few cases, a clear pattern emerged: the patients were all black girls, aged 8 to 14 years; hair-grooming with a hot iron and various hair “gels” was always involved; the patient was seated or standing, with the groomer behind the patient; the parent was not directly supervising the activity; seizures were generalized, brief, and associated with brief postictal confusion. Evaluations included electrocardiogram, electroencephalogram, chemistries, and blood counts, which were unrevealing;