Dexmedetomidine Nasal Sedation Produces More Oculocardiac Reflex During Strabismus Surgery

To the Editors:

Dexmedetomidine (Precedex; Hospira, Inc., Lake Forest, IL) is an alpha-adrenergic agonist that can serve as an intranasal alternative to oral midazolam for children undergoing strabismus surgery. Helpful for pediatric eye surgery,\(^1\) when combined with fentanyl and ketamine, intravenous dexmedetomidine may decrease oculocardiac reflex.\(^2\) From 2013 to 2015, in our institutional review board–approved study, we sought to determine the influence of these agents on prospectively studied oculocardiac reflex: a widely variable bradycardia elicited by 200 g and 10-second square wave tension on the inferior rectus muscle. Since 1992, our 2,283 primary cases without anticholinergic with a mean age of 15 ± 19 years had an oculocardiac reflex averaging -20.2% ± 0.4% (standard error of the mean) bradycardia.

Compared to no preoperative sedation in patients younger than 10 years (n = 102, median: -19.5%), dexmedetomidine (2 mcg/kg nasal) produced more oculocardiac reflex (n = 23, median: -33.6%, mean heart rate from 100 to 63 bpm, Mann–Whitney test, \(P < .01\)), whereas midazolam (0.5 mg/kg orally) was not significantly different (n = 11, median: -28.9%, mean heart rate from 122 to 85 bpm, Mann–Whitney test, \(P = .18\); Figure 1). In patients younger than 20 years who did not receive dexmedetomidine, oculocardiac reflex with fentanyl at induction (-26.6% ± 7%) was greater than in those who did not receive fentanyl (-18.6% ± 4%, \(t\) test, \(P = .03\)).

Nasal dexmedetomidine as a sedative before strabismus surgery in young patients produced more oculocardiac reflex than in patients receiving oral midazolam or those with no preoperative sedative. We also observed more oculocardiac reflex with the other agent known to produce an augmentation of oculocardiac reflex, fentanyl.\(^3\)

Surgeons, anesthesiologists, and those examining infants for retinopathy of prematurity should be aware that dexmedetomidine and fast-acting opioids can produce more oculocardiac reflex. Further study is now under way to better delineate the impact of dexmedetomidine on the oculocardiac reflex in children and adults.

REFERENCES


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