[NM-322] Unilateral Mydriasis with Dexmedetomidine in a Patient Undergoing Endoscopic Strip Craniectomy

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Dexmedetomidine is currently used off-label as an adjunct for sedation and analgesia in mechanically ventilated pediatric patients.1 We report a patient who developed transient unilateral mydriasis and prolonged sedation after the use of dexmedetomidine as an adjunct for general anesthesia for an endoscopic strip craniectomy.

Our patient was a two month old, ASA 1 patient, born full term who was scheduled for an endoscopic strip craniectomy for asymptomatic sagittal craniosynostosis repair. At the conclusion of the surgical procedure 2 mcg/kg of dexmedetomidine was infused over a ten minute period. The pupils were assessed after 45 minutes of normal spontaneous respirations, alternating with periodic breathing and lack of response to tactile stimulation. The right pupil was found to be dilated and sluggishly reactive to light. Over the subsequent 12 hours, the patient's pupils and behavior returned to baseline with no residual side effects noted.

Alpha 2-adrenoceptor agonists are known to cause mydriasis, secondary to inhibition of the parasympathetic tone to the iris, after systemic or topical administration.2 A previous case reported unilateral mydriasis after bilateral nasal packing with the alpha adrenergic agent, phenylephrine. In this case the unilateral mydriasis was accompanied by significant hemodynamic changes, which was not present in our patient. Other cases of unilateral mydriasis, not surprisingly, occurred after unilateral topical application versus intravenous administration of alpha agonists.3 Prior studies demonstrated that alpha agonists can produce an apparent mydriasis in pupils affected by Horner syndrome that may occur secondary to patient positioning and stretch injury.4

While it is difficult to ascertain the exact mechanism of the unilateral mydriasis in our patient and while the finding of unilateral mydriasis is anxiety provoking, it is important to evaluate the patient and clinical situation as a whole before an inappropriate diagnostic work-up takes place. Even though dexmedetomidine is typically used off-label in pediatric patients, studies find that it can be used safely following intracranial procedures and still cite bradycardia as the most common adverse side effect.5

References:

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