

INTRAVENOUS DEXMEDETOMIDINE AUGMENTS THE OCULOCARDIAC REFLEX

To the Editor: We read with interest the recently published study by Arnold and colleagues, "Intravenous dexmedetomidine augments the oculocardiac reflex."¹ I have a comment regarding the method of dexmedetomidine administration for evaluation of percentage oculocardiac reflex (OCR). Dexmedetomidine is a highly selective α_2 -adrenoceptor agonist, and its effects on reduction in heart rate (HR) and blood pressure have been well documented in both adults and children. Intravenous dexmedetomidine bolus should be administered over 10 minutes, followed by continuous infusion for maintenance to prevent hemodynamic changes. Decrease in HR up to 30% from baseline until 30 beats/min after 0.5 mcg/kg initial dose over 10 min has been reported.² Rapid bolus of 0.5mcg/kg dexmedetomidine in 5 seconds has been used for convenience during treatment of emergence delirium, showing significant decrease in HR below the lower limit for age as compared to the control group and decrease in HR may last till 4 minutes of injection.^{3,4} Arnold and colleagues recorded HR after administration of rapid bolus dexmedetomidine, which will lead to decrease the HR because of the selective α_2 -adrenoceptor agonist effect of dexmedetomidine. This decrease in HR can occur without traction of muscle and should not be extrapolated as OCR, which may lead to bias in the results.

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REPLY

We thank Drs. Sinha and Kumar for their inquiry and suggestions as to the pharmacologic and/or physiologic etiology of the augmented oculocardiac reflex we observed.¹ We indeed noted a substantial decrease in resting pulse from 106 ± 24 bpm to 98 ± 26 bpm after intravenous dexmedetomidine (Precedex [Hospira, Lake Forest, IL]; 0.5 $\mu\text{g}/\text{Kg}$). Slow administration would likely blunt the effect but would not have fit our time schedule between muscles. However, we then define oculocardiac reflex in adults and children as a percent change from that new baseline. We noted a profound augmentation in the percent change oculocardiac reflex. The augmentation with preoperative intranasal² or intravenous dexmedetomidine mirrors the increased oculocardiac reflex with fentanyl and remifentanyl that also can reduce baseline heart rate. In our experience, the two substances that substantially augment percent oculocardiac reflex and warrant increased vigilance are the alpha-2 agonist Precedex and fast-acting opioids.

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