The Efficacy of Perfusion Index as an Indicator for Intravascular Injection of Epinephrine-Containing Epidural Test Dose in Propofol-Anesthetized Adults.

Mowafi H.A., Ismail S.A., Shafi M.A., Al-Ghamdi A.A. *Anesth Analg*. 2009 Feb;108(2):549-53.

Background

Perfusion index (PI) is a noninvasive numerical value of peripheral perfusion obtained from a pulse oximeter. In this study, we evaluated the efficacy of PI for detecting intravascular injection of a simulated epidural test dose containing 15 mug of epinephrine in adults during propofol-based anesthesia and compared its reliability with the conventional heart rate (HR) (positive if >or=10 bpm) and systolic blood pressure (SBP) (positive if >or=15 mm Hg) criteria.

Methods

Forty patients scheduled for elective general surgery under total IV anesthesia were randomized to receive either 3 mL of lidocaine 15 mg/mL with epinephrine 5 microg/mL or 3 mL of saline IV (n = 20 each). HR, SBP, and PI were monitored for 5 min after injection.

Results

Injecting the test dose resulted in an average maximum PI decrease by 65% +/- 13% at 39 +/- 15 s. Moreover, maximal increases in HR and SBP were 19 +/- 8 bpm at 49 +/- 25 s and 17 +/- 7 mm Hg at 102 +/- 34 s after test dose injections, respectively. Using the PI criterion for intravascular injection (positive if PI decreases >or=10% from the preinjection value) the sensitivity, specificity, positive predictive, and negative predictive values were 100% (95% confidence interval [CI]; CI = 83%-100%). On the contrary, sensitivities of 95% (CI = 76%-99%) and 90% (CI = 70%-97%) were obtained based on HR and SBP criteria, respectively.

Conclusion

PI is a reliable alternative to conventional hemodynamic criteria for detection of an intravascular injection of epidural test dose in propofol-anesthetized adult patients.