

13. COMPARISON OF PERFUSION INDEX, T-WAVE AMPLITUDE AND HEART RATE AS AN INDICATOR FOR INTRAVASCULAR INJECTION OF EPINEPHRINE-CONTAINING TEST DOSE IN ANAESTHETIZED ADULTS

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Introduction:

Perfusion index (PI) is a noninvasive numerical value of peripheral perfusion obtained from a 1) pulse oximeter. In recent study, changes in PI was proven to be a new method for detecting intravascular injection of an epinephrine-containing test dose. We designed this study to compare the reliability of PI (positive if $\pm 10\%$) with the conventional heart rate (HR) (positive if ± 10 bpm) and T-wave amplitude (positive if $\pm 25\%$) for detecting intravascular injection of a simulated epidural test dose containing 15 μ g epinephrine in anesthetized patients

Methods: We studied 30 ASA physical status I or II patients undergoing elective abdominal surgery during 3 minimum alveolar concentration of sevoflurane and 50% nitrous oxide in oxygen. When hemodynamic stability was obtained, all subjects received test dose consisting of 3 mL lidocaine with 1:200,000 epinephrine via a peripheral vein. The data of EKG, SpO₂, arterial line were transferred to personal computer via A/D converter and we gained perfusion index, T-wave amplitude, and HR, SBP using MATLAB software.

Results: Applying the each criterion for intravascular injection, the sensitivity of PI, T-wave amplitude and HR were 100% (30/30, 95% confidence interval [CI]; CI = 85–100%), 100% (30/30, CI = 85–100%) and 90% (27/30, CI = 76–99%), respectively.

Discussion: We found that decrease in PI by $\pm 10\%$ are as effective as T-wave amplitude increase by $\pm 25\%$ and a heart rate increase ± 10 bpm for detecting intravascular injection of an epinephrine containing test dose in sevoflurane-anesthetized adults. Therefore, PI can be used as a reliable alternative to conventional hemodynamic criteria and T-wave amplitude.

REFERENCES

1. The efficacy of perfusion index as an indicator for intravascular injection of epinephrine-containing epidural test dose in propofol-anesthetized adults. Mowafi HA, Ismail SA, Shafi MA, Al-Ghamdi AA. *Anesth Analg.* 2009 Feb; 108 (2): 549–53.
2. Evaluating T-wave amplitude as a guide for detecting intravascular injection of a test dose in anesthetized children. Tanaka M, Nishikawa T. *Anesth Analg.* 1999 Apr; 88 (4): 754–8.