Perfusion Index versus Non-Invasive Hemodynamic Parameters during Insertion of I-Gel, Classic Laryngeal Mask Airway and Endotracheal Tube.

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Background

Perfusion index (PI) is a non-invasive numerical value of peripheral perfusion obtained from a pulse oximeter. In this study, we evaluated the efficacy of PI for detecting haemodynamic stress responses to insertion of i-gel, laryngeal mask airway (LMA) and endotracheal tube and compare, its reliability with the conventional haemodynamic criteria in adults during general anaesthesia.

Methods

Sixty patients scheduled for elective general surgery under general anaesthesia were randomised to three groups. (i-gel, LMA and ET groups (n=20/group). Heart rate (HR) (positive if ≥10 bpm), systolic blood pressure (SBP), diastolic blood pressure (DBP) (positive if ≥15 mm Hg) and PI (positive if ≤10%) were monitored for 5 min after insertion.

Main Outcome Measures

SBP, DBP, HR and PI were measured before induction of anaesthesia and before and after insertion of the airway device.

Results

Insertion of airway devices produced significant increases in HR, SBP and DBP in LMA and ET groups. Moreover, PI was decreased significantly by 40%, 100% and 100% in the three groups. Using the PI criterion, the sensitivity was 100% (CI 82.4-100.0%). Regarding the SBP and DBP criterions, the sensitivity was 44.4% (CI 24.6-66.3%), 55.6% (CI 33.7-75.4%) respectively. Also, significant change in the mean PI over time (from pre-insertion value to the 1(st) min, 3(rd) min, until the 4(th) min after insertion without regard the device type), ($P<0.001$).

Conclusion:

PI is a reliable and easier alternative to conventional haemodynamic criteria for detection of stress response to insertion of i-gel, LMA and ET during propofol fentanyl isoflurane anaesthesia in adult patients