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Perfusion Index Derived from a Pulse Oximeter Can Predict the Incidence of Hypotension during Spinal Anaesthesia for Caesarean Delivery.

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Background

Hypotension during spinal anaesthesia for Caesarean delivery is a result of decreased vascular resistance due to sympathetic blockade and decreased cardiac output due to blood pooling in blocked areas of the body. Change in baseline peripheral vascular tone due to pregnancy may affect the degree of such hypotension. The perfusion index (PI) derived from a pulse oximeter has been used for assessing peripheral perfusion dynamics due to changes in peripheral vascular tone. The aim of this study was to examine whether baseline PI could predict the incidence of spinal anaesthesia-induced hypotension during Caesarean delivery.

Methods

Parturients undergoing elective Caesarean delivery under spinal anaesthesia with hyperbaric bupivacaine 10 mg and fentanyl 20 μg were enrolled in this prospective study. The correlation between baseline PI and the degree of hypotension during spinal anaesthesia and also the predictability of spinal anaesthesia-induced hypotension during Caesarean delivery by PI were investigated.

Results

Baseline PI correlated with the degree of decreases in systolic and mean arterial pressure ($r=0.664$, $P<0.0001$ and $r=0.491$, $P=0.0029$, respectively). The cut-off PI value of 3.5 identified parturients at risk for spinal anaesthesia-induced hypotension with a sensitivity of 81% and a specificity of 86% ($P<0.001$). The change of PI in parturients with baseline PI≤3.5 was not significant during the observational period, while PI in parturients with baseline PI>3.5 demonstrated marked decreases after spinal injection.

Conclusions

We demonstrated that higher baseline PI was associated with profound hypotension and that baseline PI could predict the incidence of spinal anaesthesia-induced hypotension during Caesarean delivery.