

General anaesthesia induction using general anaesthetic agents and opioid analgesics increases Perfusion Index (PI) and decreases Pleth Variability Index (PVI): Observational clinical study

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Background

General anaesthesia induction using general anaesthetic agents and opioid analgesics induces significant changes in peripheral vascular physiology and sympathetic/parasympathetic tone, thereby affecting peripheral perfusion, as observed by changes in the pulse oximetry plethysmographic waveform. Pulse CO-Oximetry® continuously and non-invasively computes Perfusion Index (PI), a measure of peripheral perfusion, and Pleth Variability Index (PVI), a measure of dynamic changes in PI during a complete respiratory cycle. In this observational clinical study, we investigated the changes in PI and PVI using Pulse CO-Oximetry® during general anaesthesia induction.

Methods

We prospectively recorded PI and PVI from the time before oxygen administration to that before tracheal tube or laryngeal mask insertion in 21 adult patients undergoing general anaesthesia with general anaesthetic agents and opioid analgesics for elective surgeries.

Results

General anaesthesia induction significantly increased PI from 2.1 ± 1.7 to 3.8 ± 2.3 ($p < 0.01$) and significantly decreased PVI from 22.9 ± 8.1 to 17.1 ± 7.2 ($p < 0.05$).

Conclusion

PI and PVI may be useful for monitoring changes in peripheral vasodilation and sympathetic tone during general anaesthesia.