

The changes of non-invasive hemoglobin and perfusion index of Pulse CO-Oximetry during induction of general anesthesia.

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BACKGROUND: We hypothesized that induction of general anesthesia using sevoflurane improves the accuracy of non-invasive hemoglobin (SpHb) measurement of Masimo Radical-7® Pulse CO-Oximetry by inducing peripheral vasodilation and increasing the perfusion index (PI). The aim of this study is to investigate the change in the SpHb and the PI measured by Rad7 during induction of general anesthesia using sevoflurane.

METHODS: The laboratory hemoglobin (Hblab) was measured before surgery by venous blood sampling. The SpHb and the PI was measured twice; before and after the induction of general anesthesia using sevoflurane. The changes of SpHb, Hbbias (Hbbias = SpHb - Hblab), and PI before and after the induction of general anesthesia were analyzed using a paired t-test. Also, a Pearson correlation coefficient analysis was used to analyze the correlation between the Hbbias and the PI.

RESULTS: The SpHb and the PI were increased after the induction of general anesthesia using sevoflurane. There was a statistically significant change in the Hbbias from -2.8 to -0.7 after the induction of general anesthesia. However, the limit of agreement (2 SD) of the Hbbias did not change after the induction of general anesthesia. The Pearson correlation coefficient between the Hbbias and the PI was not statistically significant.

CONCLUSIONS: During induction of general anesthesia using sevoflurane, the accuracy of SpHb measurement was improved and precision was not changed. The correlation between Hbbias and PI was not significant.