

Does a digital regional nerve block improve the accuracy of noninvasive hemoglobin monitoring?

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BACKGROUND: Blood hemoglobin (Hb) can be continuously monitored utilizing noninvasive spectrophotometric finger sensors (Masimo SpHb). SpHb is not a consistently accurate guide to transfusion decisions when compared with laboratory Co-Oximetry (tHb). We evaluated whether a finger digital nerve block (DNB) would increase perfusion and, thereby, improve the accuracy of SpHb.

METHODS: Twenty adult patients undergoing spinal surgery received a DNB with lidocaine to the finger used for the monitoring of SpHb. SpHb-tHb differences were determined immediately following the DNB and approximately every hour thereafter. These differences were compared with those in our previously reported patients (N = 20) with no DNB. The SpHb-tHb difference was defined as "very accurate" if <0.5 g/dL and "inaccurate" if >2.0 g/dL. Perfusion index (PI) values at the time of each SpHb-tHb measurement were compared.

RESULTS: There were 57 and 78 data points in this and our previous study, respectively. The presence of a DNB resulted in 37 % of measurements having SpHb values in the "very accurate group" versus 12 % in patients without a DNB. When the PI value was >2.0, only 1 of 57 DNB values was in the "inaccurate" group. The PI values were both higher and less variable in the patients who received a DNB.

CONCLUSIONS: A DNB significantly increased the number of "very accurate" SpHb values and decreased the number of "inaccurate" values. We conclude that a DNB may facilitate the use of SpHb as a guide to transfusion decisions, particularly when the PI is >2.0.