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Improved non-invasive total haemoglobin measurements after in-vivo adjustment.

Miyashita R(1), Hirata N, Sugino S, Mimura M, Yamakage M.

Author information:
(1)Department of Anesthesiology, Sapporo Medical University School of Medicine, Sapporo, Hokkaido, Japan.

We hypothesised that an in-vivo adjustment method and/or a newer sensor would increase the accuracy of non-invasive and continuous haemoglobin monitoring (SpHb) measurements. Two sensors, the R1-25 and R2-25a (the newer version), were used with laboratory total haemoglobin concentration (tHb) values simultaneously recorded. In-vivo adjusted SpHb (AdHb) was calculated by a simple formula: AdHb = SpHb - (1(st) SpHb - 1(st) tHb). The correlation coefficients between SpHb (or AdHb) and tHb were compared: SpHb in both sensors correlated strongly with tHb ($p < 0.0001$). In-vivo adjustment improved the correlation coefficient between SpHb and tHb from 0.86 to 0.95 for the R1-25 and from 0.83 to 0.93 for the R2-25a. There was no difference between the R1-25 and R2-25a sensors. The in vivo adjustment method improved the accuracy of SpHb measurements in both sensors.