

Accuracy and precision of non-invasive continuous haemoglobin concentration monitoring in diabetic patients

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Background

Accuracy and precision of non-invasive continuous haemoglobin concentration (SpHb) provided by Masimo device in diabetic patients is poorly studied. This retrospective analysis aimed to provide data on SpHb accuracy and precision in diabetic patients.

Results

The sample size population consisted of 14 patients, with 56 SpHb/Lab data pairs. Lab value showed a mean \pm standard deviation (SD) of 13.2 ± 1.2 g/dL, whilst SpHb showed a mean \pm SD of 11.8 ± 1.1 g/dL. Linear regression analysis between Lab/SpHb data pairs showed a r of 0.8960 (CI95% 0.8281-0.9379, p value < 0.0001). SpHb underestimated the real Hb values provided by Lab. Bland-Altman analysis showed that SpHb accuracy was -1.37 g/dL (CI95% -1.51 to -1.22 g/dL, p value < 0.0001), precision of 0.55 g/dL, lower LOA -2.45 g/dL (CI95% -2.71 to -2.20 g/dL) and upper LOA -0.28 g/dL (CI95% -0.53 to -0.02 g/dL).

Conclusions

For the first time, we provided data on SpHb accuracy and precision in the diabetic population. SpHb showed a high correlation coefficient when compared with Lab values, but the wide LOA limits its accuracy.