

Validation of noninvasive hemoglobin measurement by pulse co-oximeter in newborn infants.

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Objective:To describe the accuracy of noninvasive hemoglobin (Hb) obtained with pulse co-oximeter (SpHb) compared with total Hb (tHb) from laboratory co-oximeter in neonates.**Study design:**Neonates with birth weight (BW) <3000 g admitted to LAC+USC Medical Center neonatal intensive care unit were included. SpHb was recorded using Masimo Radical-7 and compared with tHb. A total of three data sets were obtained for each patient. Regression analysis and Bland-Altman analysis were performed.**Result:**Sixty-one patients (mean±s.d., BW 1177±610 g and gestational age 28.7±3.9 weeks) were enrolled. The mean tHb value was 13.9±2.0 g dl(-1) and the mean SpHb was 14.0±2.0 g dl(-1). There was a moderately positive correlation between SpHb and tHb (r=0.66, P<0.001) with a bias and precision of -0.09±1.67 g dl(-1). Data from a subgroup of infants with gestational age ≤32 weeks (52/61 patients) were analyzed, and the correlation coefficient was moderately positive (r=0.69, P<0.001) with a bias and precision of -0.23±1.60 g dl(-1).**Conclusion:**Our results suggest that noninvasive SpHb may be considered as an adjunct to invasive tHb measurements in newborn infants <3000 g especially in preterm infants ≤32 weeks of gestation.