

## **Reproducibility of the Pleth Variability Index in premature infants.**

den Boogert WJ(1), van Elteren HA(1), Goos TG(1)(2), Reiss IKM(1), de Jonge RCJ(3), van den Berg VJ(1).

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The aim was to assess the reproducibility of the Pleth Variability Index (PVI), developed for non-invasive monitoring of peripheral perfusion, in preterm neonates below 32 weeks of gestational age. Three PVI measurements were consecutively performed in stable, comfortable preterm neonates in the first 48 h of life. On each occasion, pulse oximeter sensors were attached to two different limbs for 5 min. Reproducibility was assessed with the intra-class correlation coefficient (ICC) and Bland-Altman analysis. A total of 25 preterm neonates were included. Inter-limb comparison showed fair to moderate ICC's with 95%-confidence intervals (95%-CI). Left hand-right hand ICC = 0.498, 95%-CI (0.119-0.753); right foot-right hand ICC = 0.314 (-0.088-0.644); right foot-left foot ICC = 0.315 (-0.089-0.628). Intra-limb comparison showed fair to moderate ICC for right foot-right foot ICC = 0.380 (-0.014-0.677); and good ICC for right hand-right hand ICC = 0.646 (0.194-0.852). Bland-Altman plots showed moderate reproducibility of measurements between different limbs and of the same limb in consecutive time periods, with large biases and wide limits of agreement. The findings from this study indicate that PVI measurement is poorly reproducible when measured on different limbs and on the same limb in stable and comfortable preterm neonates.