

Perfusion index variations in clinically and hemodynamically stable preterm newborns in the first week of life

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Background: The perfusion index, derived from the pulse oximeter signal, seems to be an accurate predictor for high illness severity in newborns. The aim of this study was to determine the perfusion index values of clinically and hemodynamically stable preterm newborns in the first week of life.

Methods: Perfusion index recordings were performed on the first, third and seventh day of life on 30 preterm newborns. Their state of health was assessed according to clinical and behaviour evaluation and to the Score for Neonatal Acute Physiology.

Results: The median(interquartile range) perfusion index values were 0.9(0.6) on the first, 1.2(1.0) on the third, and 1.3(0.9) on the seventh day, with a significant increase between the first and the third day.

Conclusions: Perfusion index proved to be an easily applicable, non-invasive method for monitoring early postnatal changes in peripheral perfusion. Its trend during the first week of life suggests that its clinical application should take age into account. Further studies are needed to obtain reference perfusion index values from a larger sample of preterm newborns, to identify specific gestational age-related cut-off values for illness and to test the role of perfusion index in monitoring critically ill neonates.