Determination of the Perfusion Index Reference Values and Variation in Clinically and Hemodinamically Stable Newborns During the Early Neonatal Period

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Background and Aims

The perfusion index (PI); is an easy, non-invasive technique for the assessment of peripheral perfusion. The aim of this study was to determine the peripheral PI reference values and PI variability of clinically and hemodynamically stable newborns during the first five days.

Method

Pre- (right hand) and postductal (foot) PI values were recorded on the sixth hours, first, second, third and fifth day of 241 newborns life with the new generation pulse oximeter [Masimo Rad-7 Oximeter, USA].

Results

A total of 241 newborns (196 term, 45 preterm) were included in the study. The average gestation age of all newborns was 38.4±2.0 weeks and birth weight was 3204±566 grams. According to the analysis of repeated measurements of term and preterm groups within the first 5 days, PI values of right hand and foot did not vary. However, right hand PI values were significantly higher than foot PI values ($p<0.001$). During the first 3 days, both the right hand and foot PI median values of term newborns were significantly higher than preterm newborns ($p<0.001$) whereas on the fifth day, difference was disappeared (right hand; $p=0.10$, foot; $p=0.45$).

Conclusion

The peripheral perfusion of stable newborns did not vary significantly during the first five days. It was considered, higher PI value of term newborns compared to preterm newborns, is the result of early adaptation in the microvascular blood flow. PI values obtained from stable newborns may be guiding for further studies planned on various diseases associated with impaired perfusion.