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Study of oxygen saturation by pulse oximetry in healthy preterm and term neonates at birth

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Statement of the Problem: Oxygen is commonly used in newborns, especially preterm infants at birth and afterwards and to monitor the SpO₂ there is an increasing evidence of using pulse oximetry in the labour room. There is paucity of data for the reference ranges of oxygen saturation for preterm and term infants after birth and also there is a need to compare these values in these groups. A study was undertaken to describe range of saturation in healthy term and preterm infants during first 10 minutes of life and their comparison on the basis of gestational age.

Methodology & Theoretical Orientation: Two hundred healthy term and preterm neonates delivered normally or by caesarean section who did not require any intervention or support for survival were included in this study. The SpO₂ readings were recorded using Masimo pulse oximeter at 1 to 10 minutes after birth.

Findings: The median SpO₂ value at 1,3,7 and 10 minutes after birth, respectively, for newborns < 37 weeks (n=97) was 78%, 89%, 95% and 96%. The median SpO₂ values at 1,3,7 and 10 minutes for newborns born at gestation ≥ 37(n=103) weeks was 80%, 90%, 96% and 96% respectively. We present percentile charts for all infants, term infants of ≥ 37 weeks, late preterm infants of 34 to 36 +6 weeks and infants of <34 weeks. Pulse oximetry can be used during neonatal resuscitation and with knowledge about the normal changes in SpO₂ in the first minutes of life with regards to the gestation age can be useful for the resuscitation team as they can assess the infant's oxygen requirements with reference charts for SpO₂ at different gestations in the delivery room.

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