

[2918.280] Cerebral Oxygen Saturation Using Multiple Platforms in Term and Pre-Term Neonates during Transition

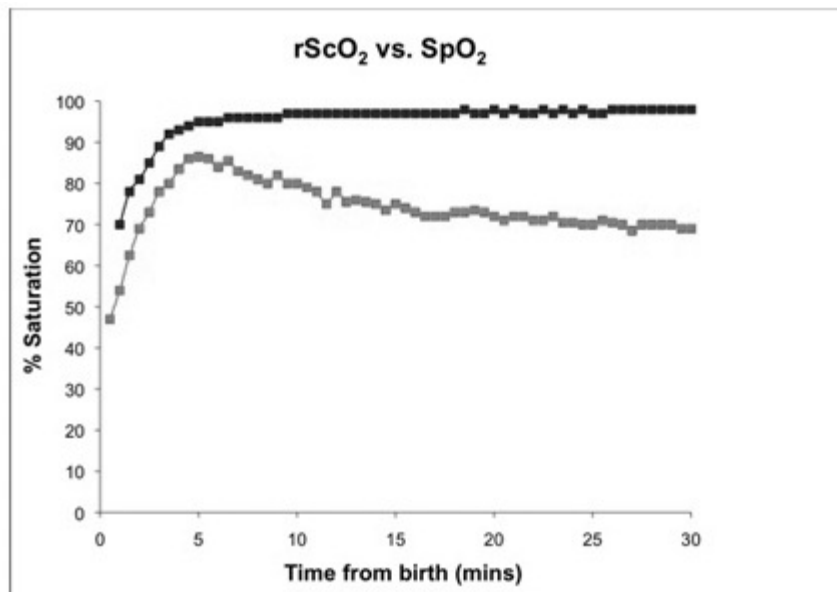
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BACKGROUND: Oxygen therapy is pivotal for the resuscitation of hypoxic infants. The detrimental effects of oxygen demand correct dosing. Pulse oximetry in the delivery room, as well as SpO₂ nomograms to guide oxygen use, are accepted practice. There is sparse data, however, regarding tissue oxygen saturation during transition, specifically, cerebral oxygen saturation (ScO₂) in the immediate post-natal period.

OBJECTIVE: To determine ScO₂ in normal term and preterm infants using near infrared spectroscopy (NIRS) during the first 30 minutes of life in conjunction with SpO₂, HR, PI, and cord gas data.

DESIGN/METHODS: The study is a prospective observational study in normal term (>37 weeks) and preterm infants (33-37, <33 weeks). Consented patients at delivery had either an INVOS infant NIRS sensor or Foresight infant NIRS sensors placed on the forehead and a Masimo LNOP Neo-L SpO₂ sensor placed on the right wrist. Sensors were placed as soon as 30 seconds after cord clamping. ScO₂, SpO₂, HR, and pulsatility index (PI) were recorded every 30 seconds with a multiparameter event recorder or manually for 30 minutes. The data were used to generate plots of oxygen saturation versus time, determine FTOE, and to correlate with HR, PI, and cord gas data.

RESULTS: The study extends our previous term data and now includes preterm infants. We will soon have enrolled in excess of 100 term infants and have begun enrollment of preterm infants. In term infants, the ScO₂ rises during the first minutes of life to a median of 85%, tracking with and below the SpO₂. The ScO₂ then declines away from the SpO₂, to a median of 72% by 20 minutes, consistent with observed post-transition ScO₂. The observed data has low inter-patient variability.



CONCLUSIONS: This study strengthens our previous data regarding ScO₂ from birth through transition, and includes preterm infants. The more robust normal term infant data, as well as preterm data, should prove useful for targeting of ScO₂ during resuscitation.

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Cerebral Oxygen Saturation on the Delivery Room

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