Oxygen Saturation Profiles in Healthy Term Neonates

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BACKGROUND

• While oxygen saturation target ranges have become standardized among premature infants, limited evidence exists for normal oxygen saturation values in healthy term infants.

• Oxygen saturation profiles, which are compiled patterns over a time period, are increasingly used in clinical decision making to guide the need for oxygen supplementation.

METHODS

• Prospective cohort study of healthy term newborns born at 37-41 weeks gestation admitted to Unity Point Meriter Hospital Newborn Nursery.

• Objective: To determine oxygen saturation profiles over an 8-hour monitoring period in healthy term neonates between 24 and 48 hours after birth.

• Preductal oxygen saturations were continuously monitored for 8 hours using pulse oximetry.

• Oxygen profile histogram for 8 hour study period was recorded for analysis.

RESULTS

• Current analysis included 52 newborns

• Mean SpO2 = 94.9%
• Median SpO2 = 95.2%

• Percent time spent in each SpO2 interval:
  • ≤ 80: 0.19%
  • 81-84: 0.59%
  • 85-89: 4.21%
  • 90-94: 31.9%
  • 95-100: 63.1%

• Twelve infants (23%) spend the majority of time in the 90-94% SpO2 range

• Average SpO2 of healthy term newborns is about 95% during 24-48 hours of life.

• Nearly a quarter of newborns spent the majority of time in SpO2 of 90-94%.

CONCLUSIONS

• Average SpO2 of healthy term newborns is about 95% during the first 24-48 hours of life.

• Nearly a quarter of newborns spent the majority of time in the 90-94% SpO2 range.

• This data can help clinicians interpret oxygen saturation profiles of term newborn infants admitted to the NICU for non cardiopulmonary concerns.

• We plan to:
  • Increase study size with continued subject enrollment.
  • Investigate correlations between neonatal oxygen profiles and short-term health outcomes in infancy.

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