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 complied 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.

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%.

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

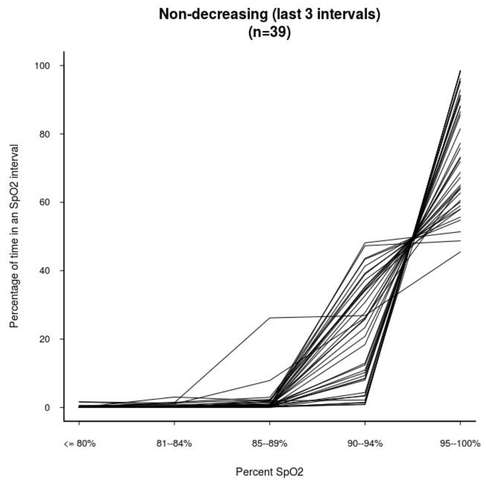

Fig 1 Oxygen profiles for 39 newborns with highest SpO2 95-100%

RESULTS cont.

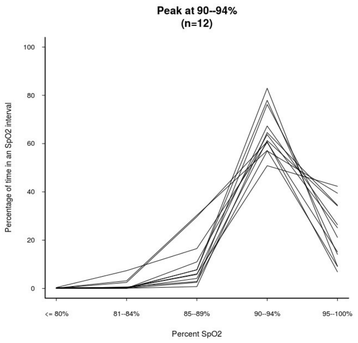

Fig 2 . Oxygen profiles for 12 newborns with highest SpO2 90-94%

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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