"SENSITIVITY AND SPECIFICITY OF THE PAO₂/FIO₂ RATIO IN THE INDICATION OF ADMINISTRATION OF SURFACTANT IN VERY LOW BIRTH WEIGHT PRETERM INFANTS"

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Background

- Surfactant therapy has been studied in preterm infants and has been shown to significantly decrease air leaks and neonatal mortality. Protocols for the administration of pre-term surfactant with respiratory distress syndrome (RDS) have been proposed, however we did not find any that analyzed the sensitivity and specificity of the PaO₂ / FiO₂ value in these patients.

Objective

- This article aims to find association between PaO₂ / FiO₂ and preterms <1500grams (VLBW) in need of surfactant therapy.

Methods

- Retrospective study.
- Included: newborns VLBW included in Brazilian Neonatal Network born between January 2016 and December 2017.
- Excluded: death in the delivery room; lack of data
- The PaO₂ / FiO₂ ratio was calculated at neonatal intensive care unit admission.
- R3.4.2 software was used to perform the ROC curves to evaluate the association between the PaO₂ / FiO₂ ratio and the need for surfactant therapy.
- Fisher's exact test was used to evaluate the association between variables using the SAS 9.4 software.

Results

- Included 220 newborns with mean gestational age at birth 28.87 weeks (SD = 20.95) and mean birth weight 1010 grams (SD = 300.14).

Figure 1. Study Design

- The PaO₂ / FiO₂ ratio of 249.0 showed sensitivity and specificity of 81% and 68%, respectively, in preterm with RDS that required surfactant.

Figure 2. Association between the PaO₂/FiO₂ ratio and the need surfactant in very low birth weight preterm infants (ROC curve)

Conclusion

- PaO₂ / FiO₂ ratio < 250 presented good sensitivity (81%) with low specificity (68%) in premature infants who required surfactant, suggesting that these indices should not be used as a single reference for indication of surfactant administration. However, PaO₂ / FiO₂ ratios < 250 appear to represent an additional tool for the indication of this therapy.