EARLY OCCURRENCE OF ATELECTASIS IN NEWBORN $\leq 1500\text{G}$ IS ASSOCIATED WITH BRONCOPULMONARY DISPLASIA

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BACKGROUND

- Atelectasis in preterm infants are frequent and potentially severe, but not very well studied.
- There are currently few studies evaluating risk factors and outcomes associated with this morbidity in preterm infants.

OBJECTIVE

- To assess the risk factors and outcomes occurred before the corrected gestational age of 36 weeks, associated with the diagnosis of early atelectasis in neonates $< 1500\text{g}$ (VLBW).

METHODS

- Retrospective, observational and cohort study.
- Included: preterm infants $\leq 1500\text{ g}$ born from January 2016 to December 2017.
- Excluded: malformations; death.
- Bronchopulmonary dysplasia (BPD): use of O_2 at 36 weeks corrected gestational age.
- Atelectasis: radiological image of pulmonary collapse before the corrected gestational age of 36 weeks.
- Categorical variables were analyzed by descriptive statistics and calculated Relative Risk for risk factors and outcomes. The data were analyzed in logistic regression models.

RESULTS

Figure 1. Study design

TABLE 1. Risk factors for early atelectasis

Risk factors	RR(CI 95%)	Adj RR (CI 95%)
Gestational age ≤ 28 weeks	3.50 (1.92; 6.36)	
Birth weight $\leq 1000\text{g}$	3.03 (1.66; 5.53)	
SNAPPE II > 20	2.98 (1.50; 5.97)	
Mechanical Ventilation	19.85 (2.78; 141.66)	13.58 (1.83; 100.67)
Respiratory Distress Syndrome (RDS)	5.42 (2.37; 12.37)	3.60 (1.40 a 9.25)
Early sepsis	2.13 (1.21 a 3.76)	1.54 (0.87 a 2.73)
Use of vasoactive drugs in the first 72 hours	2.2 (1.28 a 3.76)	1.40 (0.80 a 2.44)
Resuscitation Delivery Room	1.79 (0.59 a 5.43)	1.20 (0.40 a 3.57)

RESULTS

Figure 2. RR of risk factors for early atelectasis, crude RR (A) and adjusted for gestational age, birth weight and sepsis (B)

Table 2. Outcomes associated with early atelectasis

Outcomes	RR (IC95%)	AdjRR (IC 95%)
PIVH (grade 3 – 4)	1.79 (0.80 a 4.02)	1.01 (0.45 a 2.26)
Pneumothorax	2.31 (0.99 a 5.37)	1.25 (0.54 a 2.90)
Retinopathy (grade 2 and 3)	1.82 (1.06 a 3.15)	1.14 (0.67 a 1.95)
Pulmonary haemorrhage	1.98 (1.10 a 3.57)	1.15 (0.64 a 2.13)
BPD	3.38 (2.06 a 5.55)	1.99 (1.12 a 3.57)

Figure 3. Relative Risk of the outcomes of early atelectasis, crude (A) and adjusted for gestational age, birth weight and sepsis (B)

Figure 4. Ventilation length in the newborn with or without atelectasis

CONCLUSIONS

- Birth weight < 1000 grams, gestational age ≤ 28 weeks, SNAPPEII ≥ 20 and RDS are predictors of atelectasis.
- The early occurrence of atelectasis leads to a longer duration of mechanical ventilation and increase the risk of BPD.