

Subjective assessment of perinatal adaptation and respiratory management in <29 weeks infants.

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Background

Current evidence shows benefits from a primary CPAP strategy even in extremely preterm infants. However, many still require intubation for perinatal stabilization. Half of those managed with primary CPAP will require further support: surfactant administration or mechanical ventilation. Those infants have increased risks of death and neonatal morbidities, and will require longer duration of respiratory support. Identifying them early, during the birth stabilization process, might lead to improvements in respiratory care.

A subjective classification of perinatal adaptation as Good, Bad or Marginal has been suggested but not evaluated.

Aim

To evaluate respiratory management according to perinatal adaptation.

Methods

Single center retrospective study of <29 weeks premature infants admitted between 01/2013 and 07/2014. Neonatal database and discharge summaries provided neonatal care and outcome data. Perinatal adaptation was sorted as Good, Marginal or Bad according to birth transitional support notes.

Methods (Continued)

- Cries at birth
- Vigorous breathing
- Good HR
- Low FiO₂

The Good



- Apneic
- Atonic
- Bradycardic
- High FiO₂

The Bad

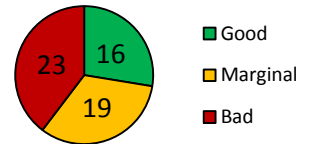


- Intermittent breathing
- HR ↑ with ventilation
- FiO₂ ↑ then ↓

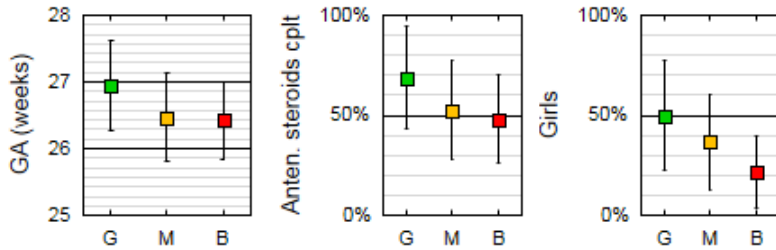
The Ugly Marginal



Results: distribution

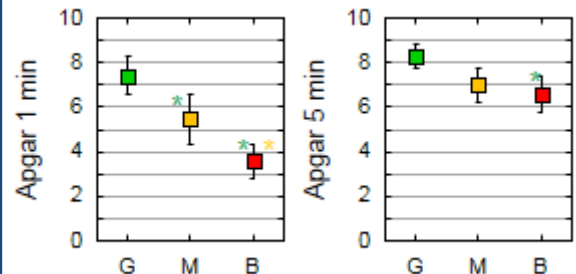


Results: risk factors



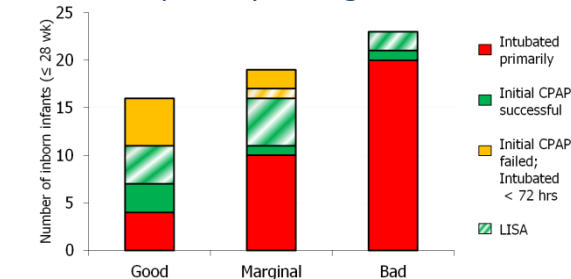
Risk factors for bad perinatal adaptation (B) are (not significantly different): male gender, lower GA, and absent/incomplete antenatal steroid exposure.

Results: at birth

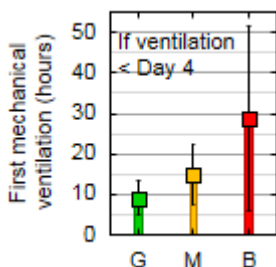


Apgar score at 1 minute increases according to perinatal adaptation quality (p<0,01), with improvements at 5 minutes (G vs B p<0,01).

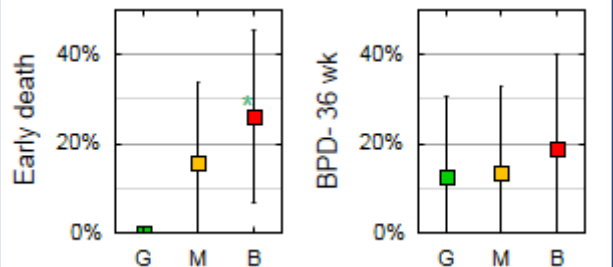
Results: respiratory management



Risk of intubation in the delivery room is associated with poorer adaptation (p<0,01). Primary CPAP success was not different according to groups. However, more infants with MPA received surfactant while on CPAP (LISA method) This surfactant was given in the delivery room in 1, 4 and 2 infants respectively. For infants ventilated within day 3, the duration of the first episode of mechanical ventilation was (NS) shorter with better perinatal adaptation.



Results: chronic outcomes



Risk of early neonatal death decreases with improving perinatal adaptation (G vs B: p<0,05). However, risk of BPD at 36 weeks is not different among groups.

Conclusions

Better perinatal adaptation is associated with better chances of being initially managed with CPAP or shorter initial invasive ventilation (NS). CPAP success may be improved with less invasive surfactant therapy, especially in preterm infants with marginal adaptation. Perinatal adaptation assessment also identifies early mortality risk.