

The Good, the Bad, the Marginal: respiratory management of <29 weeks infants according to subjective assessment of perinatal adaptation.

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Background

Even if a primary CPAP strategy gives benefits in extremely preterm infants, many still require intubation at birth. Half of those initially 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 requires further evaluation. We aimed to evaluate respiratory management according to perinatal adaptation.

Methods

Premature infants of less than 29 weeks and admitted between 01/2013 and 07/2014 were retrospectively studied. Neonatal database and discharge summaries provided neonatal care and outcome data. Good perinatal adaptation (GPA) was considered for infants with good respiratory drive, tone and low oxygen requirement in the delivery room. Infants with marginal (M) PA had intermittent respiratory drive, normocardia with ventilation, and decreasing FiO₂. Bad (B) PA is considered with hypotonia, bradycardia, apnea and high FiO₂. Data are presented as mean +/- SD, median (interquartile range) or incidence and analyzed with ANOVA, Kuskal-Wallis test or Chi².

Results

Sixteen infants had GPA, 19 MPA and 23 BPA. GA was 26 4/7 wk (24-28) and BW was 885 ± 187g.

Risk factors for bad adaptation are (NS) male gender, lower GA, and no complete antenatal steroid exposure. Apgar at 1 min. increases with better PA [B3 (2-5); M6 (3-7) and G8 (7-8)*] (*p<.05 vs B & M), and improves at 5 min.: [B7 (6-7); M7 (6-8); G 9 (8-9)*]. Risk of intubation at birth is associated with poorer adaptation (B 87%; M 47%; G 12%, p<.01)

Primary CPAP success was not different according to group (B 3/3; M66%; G56%). Surfactant while on CPAP (LISA method) was given to 11/16 patients, including 7 delivery room administrations. If intubated by day 3, duration of first invasive ventilation was shorter (NS) for GPA (9h) [MPA (15h), BPA (29h)].

Early neonatal death tended to decrease with better PA: 26%, 16% and 0% (p=.08). There is no difference in BPD <36 wk (B 19%, M13%, G 12%).

Conclusions

Infants with better perinatal adaptation have increased chances of being initially managed with CPAP. Primary CPAP success may be improved with less invasive surfactant therapy. Outside of the delivery room, perinatal adaptation assessment tends to identify risk of early neonatal death, but is not predictive of respiratory outcomes.