

Impact and Challenges of Early Continuous Positive Airway Pressure Therapy for Very Low Birth Weight Neonates in a Developing Country

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Abstract

BACKGROUND:

Early nasal continuous positive airway pressure (EnCPAP) therapy after birth for very low birth weight (VLBW; <1,500 g) neonates has been reported to be beneficial in developed countries. Its benefits in developing countries, such as Malaysia, are unknown.

OBJECTIVES:

This study aimed to determine EnCPAP rates in 36 neonatal intensive care units of the Malaysian National Neonatal Registry (MNNR) in 2013, to compare the outcomes of VLBW neonates with and without EnCPAP, and to determine whether the availability of CPAP facilities and unit policies played a significant role in EnCPAP rates.

METHODS:

First, a retrospective cohort study was conducted of VLBW neonates born in the hospitals participating in the study without major congenital abnormalities in the MNNR. This followed by a questionnaire survey of these hospitals focused on CPAP facilities and unit policies.

RESULTS:

Of the 2,823 neonates, 963 (34.1%) received EnCPAP. Amongst EnCPAP neonates significantly fewer deaths were recorded (10.9 vs. 21.7%; $p < 0.001$), less bronchopulmonary dysplasia was observed (BPD; 8.0 vs. 11.7%; $p = 0.002$) and fewer mechanical ventilation days were necessary ($p < 0.001$) than in non-EnCPAP neonates. Logistic regression analysis showed that EnCPAP was significantly associated with a lower mortality (adjusted OR 0.623; 95% CI 0.472, 0.824; $p = 0.001$) and BPD among survivors (adjusted OR 0.585; 95% CI 0.427, 0.802; $p = 0.001$). The median EnCPAP rate of the 36 hospitals was 28.4% (IQR 14.3-38.7). Hospitals with CPAP facilities in the delivery suites ($p = 0.001$) and during transport ($p = 0.001$) and a policy for EnCPAP ($p = 0.036$) had significantly higher EnCPAP rates.

CONCLUSION:

EnCPAP reduced mortality and BPD in Malaysian VLBW neonates. Resource-strapped developing countries should prioritize the use of this low-cost therapy.