

Risk factors associated with pneumothorax in Malaysian neonatal intensive care units.

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Abstract

AIMS:

This study aimed to determine the risk factors associated with the development of pneumothorax among infants admitted to the Malaysian neonatal intensive care units (NICUs).

METHODS:

Twenty-nine of forty NICUs in Malaysian public hospitals participated in the 2006 Malaysian National Neonatal Registry (MNNR). Data of infants from this registry with and without pneumothorax were analyzed. A diagnosis of pneumothorax was made in the presence of extra-pleural air detected by chest radiograph or needle aspiration.

RESULTS:

There were 10,387 infants admitted to these NICUs who met the MNNR inclusion criteria and were included in this study. Pneumothorax developed in 505 (4.9%) of them. Pneumothorax was most common (7.3%) among the extremely low birthweight infants (birthweight equal or less than 1000 g) and the extremely preterm infants of gestation equal or less than 26 weeks (6.8%). Logistic regression analysis showed that the significant risk factors associated with increased risk of development of pneumothorax were: meconium aspiration syndrome (adjusted odds ratio (OR) = 2.1, 95% confidence intervals (CI): 1.7, 2.7), intermittent mandatory ventilation (adjusted OR = 1.5, 95% CI: 1.2, 2.0), high-frequency oscillatory ventilation (adjusted OR = 3.9, 95% CI: 3.0, 5.2) and confirmed sepsis (adjusted OR = 1.6, 95% CI: 1.3, 2.1). Infants on nasal continuous positive airway pressure (nCPAP) therapy were associated with significantly lower risk of pneumothorax (adjusted OR = 0.5, 95% CI: 0.4, 0.6).

CONCLUSION:

Meconium aspiration syndrome, mechanical ventilation and sepsis were associated with increased risk and the use of nCPAP with decreased risk of pneumothorax in Malaysian NICUs.