EDITORIAL COMMENTARY

Predicting Broncho Pulmonary Dysplasia in Preterm Infants

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Owing to improved perinatal care, survival of preterm infants has significantly improved. However, associated bronchopulmonary dysplasia (BPD) and long-term neurodevelopmental issues have also collaterally increased. There is 50% chance of readmission for neonates with BPD during infancy. In addition, these infants are more prone to develop reactive airway disease, asthma, emphysema, and bronchiolitis [1]. The prenatal risk factors for BPD include lack of antenatal steroids, pregnancy induced hypertension, hypoxia, maternal smoking, chorioamnionitis, genetic predisposition and congenital anomalies leading to pulmonary hypoplasia. Lung immaturity, poor nutrition, mechanical ventilation, hyperoxia and sepsis are some of the postnatal factors which can predispose a preterm neonate to develop BPD [2]. Identification of risk factors for BPD in extremely premature neonates can provide prognostic information, identify neonates who are likely to benefit from preventive strategies and stratify them for clinical trial enrolments. A BPD outcomes calculator, developed by the National Institute of Child Health and Human Development (NICHD) based on a large population dataset, has been noted to be useful for calculating individual risk. A risk above a certain threshold may indicate that the benefits of corticosteroids can outweigh the risks involved. This particular risk estimator has not been tested in the Indian population. In this context, the study done by Goyal et al. gains importance [3].

This prospective observational study was done in a tertiary care hospital, Mumbai among preterm infants born between 23 to 30 wk of gestation. The risk factors and incidence of BPD were assessed, and the precision of BPD prediction at six pre-specified time points using NICHD BPD risk estimator was evaluated by comparison of the estimated risk to the observed rates. A total of 310 neonates with mean gestation age of 28.7 ± 1.5 wk and birth weight of 1023.6 ± 171.4 g were included in this study. Any BPD was noted in 54 (17.4%) infants with severity being mild, moderate, and severe in 29 (53.7%), 17 (31.5%), and 8 (14.8%) infants respectively. Hundred (32.3%) infants died prior to hospital discharge. The significant risk factors for development of BPD included sepsis, retinopathy of prematurity, patent ductus arteriosus, intraventricular hemorrhage and blood transfusions. The NICHD BPD calculator was precise for the prediction of death or moderate-severe BPD on first and third day of life with the area under the curve of 0.82 and 0.77 respectively. The authors have concluded that the calculator helped to accurately predict moderate to severe BPD early among Indian preterm neonates [3].

Goyal et al. need to be appreciated for the wonderful effort. However, the results are from a single centre and cannot be generalised. As there is marked difference in race and ethnicity within the country, the population studied could have included representative samples from other parts of the India. It is to be noted that race and ethnicity for all infants in the study were marked as Hispanic as a discrete option for Asian race was unavailable. Problems in application of the output of the NICHD BPD outcomes calculator have been highlighted. Even in the US population black neonates have a consistently lower predicted risk of BPD due to a higher risk of mortality. As sociodemographic factors can have strong influence on NICU outcomes, appropriate data pertaining to sociodemographic factors should be incorporated in risk estimators [4]. Though BPD occurs when lung development arrests in the late canalicular to saccular stage, the implications of this pathology can extend into adulthood. Hence, further extensive research on interventions for BPD prevention is warranted.

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Declarations

Conflict of Interest None.

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