NO.3

PRETERM BIRTH AND THE METABOLIC OUTCOMES IN CHILDHOOD: A POPULATION-BASED COHORT STUDY FROM TAIWAN

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Objective
A number of studies have identified preterm birth or lower birth weight (LBW) as a risk factor for features of the metabolic syndrome in later life. However, also studies indicate no negative impact of preterm birth on blood pressure or insulin sensitivity. We investigated the metabolic outcomes and identified gender-specific effects in children with preterm birth or LBW in Taiwan.
Methods
We used the data of the National Health Insurance System of Taiwan to assess this issue. The preterm cohort contained 37119 infants, LBW cohort 4411 infants and matched comparison cohort 166120 infants from 1996 to 2008. Cox's proportional hazard regression analysis was conducted to estimate the effects of preterm birth or LBW on the metabolic outcomes.
Results
The Preterm & LBW cohort, as a whole, had significantly increased risk of developing metabolic disorder when compared with the comparison cohort (HR = 2.29, 95% CI = 1.89-2.78). For subtype metabolic disorder, the Preterm & LBW cohort was not significantly associated with increased risk of developing hypertension (HR = 1.61, 95% CI = 0.91-2.86); however, they had a 2.48-fold increased risk for diabetes mellitus (DM) (HR = 2.48, 95% CI = 1.98-3.11) and a 2.18-fold risk for hyperlipidemia (HR = 2.18, 95% CI = 1.33-3.57) than the comparison infants. The similar phenomena were observed when preterm cohort and LBW cohort were separately compared with the comparison cohort. However, if their parental occupations were not white collar (HR =1.29, 95% CI = 0.32-5.30) or lived in rural area (HR =1.40, 95% CI = 0.44-4.43), the LBW infants did not have significantly higher risk for the development of metabolic disorder than comparison cohort.
Conclusions
Our study found that the children with preterm birth or LBW in Taiwan have a higher risk of developing DM and hyperlipidemia, but not hypertension. The parental occupations and urbanization have effect on the development of metabolic disorder in LBW infants. Further study extending to adulthood with preterm birth or LBW is necessary to understand the long-term effect on their metabolic status

NO.4

INHALED NITRIC OXIDE REDUCE THE INCIDENCE OF BRONCHOPULMONARY DYSPLASIA IN PRETERM VERY LOW BIRTH WEIGHT INFANTS: AN UPDATE META-ANALYSIS

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Objective
Inhalednitricoxide(iNO) has been shown in several studies to reduce the incidence of bronchopulmonary dysplasia (BPD) in preterm very low birth weight(PVLBW) infants with respiratory failure based on facts that iNO reduces pulmonary vascular tone and prevents lung inflammation in these infants.However, different studies have reportedconflicting findings and have not been adequately powered to exclude modest effect sizes.
Methods
Standard systematic review and meta-analysis methodologies were followed. PubMed, Embase, Cochrane, Web of Science, and Scopus databases (from January 1996 to December 2014) were searched. The eligible studies were collected and analyzed using Review Manager 5.3. Funnel plots wereconstructed to investigate the prevalence of publication bias. Study Selection: Inclusion criteria for this meta-analysis were: (1) original report; (2) target population was PVLBW infants;(3) studies that compared the pulmonary outcomes in populations with iNO vs. placebo therapy; (4) BPD (the primary outcome)was defined as persistent oxygen dependency at 36 weeks post-menstrual age. Data Extraction and Synthesis: Two reviewers independently extracted the relevant information from all applicable articles. The investigators evaluated both the study design and study group characteristics to ensure that they met the parameters of this meta-analysis. Main Outcome(s) and Measure(s): INO reduced the incidence of BPD (P=0.004) and BPD or death (P=0.04) in PVLBW infants.
Results
Twenty-nine potentially relevant randomized controlled trials were identified, 10 of which met the inclusion criteria (3183PVLBW infants) for this meta-analysis.The pooled unadjusted odds ratio (OR) demonstrated that iNOtherapy in PVLBW infants reduced the risk of BPD (P=0.004; OR =0.79, 95% confidence interval (CI) =0.68-0.93) and BPD or death (P=0.04; OR =0.85, 95% CI=0.73-0.99) compared with those PVLBW infants receiving placebo therapyat 36 weeks' postmenstrual age.However, there were no statistically significant effects of INO on the duration of mechanical ventilation[P=0.26; 95% CI = -5.20~1.43].
Conclusions
Currently available evidence demonstrates that iNO therapy reduces the incidence of BPDand BPD or death in PVLBW infants. The finding of this update meta-analysis that inhaled nitric oxide reduces the incidence of bronchopulmonary dysplasia in preterm very low birth weight infants will make a significant impact on neonatal practice. However, the duration of mechanical ventilation was not improved with iNO therapy in PVLBW infants.