John Wells Logan, Pediatr Ther 2017, 7:4 (Suppl)
DOI: 10.4172/2161-0665-C1-045

John Wells Logan

Nationwide Children's Hospital, USA

Bronchopulmonary dysplasia: Pathophysiology, disease progression and management

Bronchopulmonary dysplasia (BPD) is increasing in frequency among infants born preterm. Higher survival rates correlate with advances in care, but survival benefit is accompanied by increase in morbidity. The phenotype correlates better with disease severity than with current consensus definitions of BPD. Infants born during the late canalicular or early saccular stages of development may survive, but frequently have significant pulmonary morbidity. The pathophysiology correlates with arrested lung development, dysregulated surfactant production, and dysregulated pulmonary vascular development. Disease progression derives from antenatal and perinatal exposures that modify lung function and development, but a number of postnatal exposures, i.e. the quality of neonatal resuscitation, the presence or absence of infection, and the duration of exposure to oxygen and positive pressure ventilation each potentially impact pulmonary and neurocognitive outcomes. Optimal clinical management depends on a clear understanding that once BPD is established, preventive measures are no longer appropriate. Infants with a less severe phenotype have mild diffusion defects, requiring only nasal cannula oxygen or continuous positive airway pressure. Those requiring mechanical ventilation at 36 weeks gestational age (or beyond) have a more severe phenotype, and are at greater risk of adverse outcomes. Regardless of the phenotype, the support apparatus should match the disease physiology. Provision of adequate ventilation-perfusion (V/Q) matching and ensuring oxygen saturations are essential for stabilizing respiratory status, minimizing pulmonary vascular dysregulation and achieving metabolic and developmental gains. Comfortable respirations and positive developmental signs, if accompanied by lean tissue and linear growth, provide some evidence for a net positive balance.

Biography

John Wells Logan is Board-certified in Pediatrics and Neonatal-Perinatal Medicine. He completed his Medical Training at the Medical University of South Carolina in 1995, and his Fellowship in Neonatal-Perinatal Medicine at Duke University Medical Center in 2007. Ongoing collaboration with the Extremely Low Gestational Age Newborn (ELGAN) Study Group has led to several contributions to the field. He is working as the Associate Medical Director of the Broncho-pulmonary Dysplasia Unit at Nationwide Children's Hospital and has over 15 peer-reviewed publications. He is interested in improving the long-term pulmonary and neurocognitive outcomes of infants with severe phenotype broncho-pulmonary dysplasia.

JWells.Logan@nationwidechildrens.org

Notes: