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Respiratory management of the newborn with an omphalocele

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An omphalocele is a congenital defect of the umbilical ring with herniation of the viscera. Despite of advances in neonatal care, for live-born infants, the mortality rate remains between five and 25%. Respiratory failure at birth is an independent predictor of mortality for omphalocele infants, but the causes are diverse. In this presentation, giant and non-giant omphalocele are compared, as giant omphalocele have more respiratory difficulties. Prenatal predictors of post-natal respiratory failure and care strategies are discussed. Pulmonary hypoplasia is defined. Historically, fetuses and infants with omphalocele are reported to have markedly reduced chest capacities. Recently, fetal magnetic resonance imaging (MRI) has expanded the understanding of decreased congenital lung volume in infants with omphalocele. Clinical-radiologic correlation studies support the use of prenatal MRI to predict the degree of respiratory insufficiency observed in the postnatal period. The contribution of major anomalies to respiratory difficulties is discussed. Infants with omphalocele may have increased pulmonary vascular reactivity and pulmonary hypertension that increases the post-natal mortality risk. In this presentation, pulmonary hypoplasia and pulmonary hypertension are defined as distinct entities. The two diagnoses must be distinguished from each other in the clinical setting. The implications of congenital heart defects are explained. The role and goals of assisted ventilation for respiratory failure are expanded. Since 2011, infants with omphalocele and respiratory failure have required the extra-corporeal membrane oxygenator. The first review of the Extra-Corporeal Life Support (ELSO, Ann Arbor, MI USA) database for the causes of respiratory failure and outcomes in omphalocele infants place will be presented. The timing of surgical repair, post-operative complications such as compartment syndrome, delayed surgical closure techniques and the implications of a ruptured omphalocele are explained. Pulmonary function abnormalities, chronic lung disease, the role of tracheostomy, the influence of gastroesophageal reflux disease (GERD), prematurity, and improved outcome strategies are discussed.

Biography

Joanne Baerg is currently working as a Pediatric Surgeon at Loma Linda University Children's Hospital, Loma Linda, CA, USA.

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