**Influence of pulmonary hypertension on surgical PDA ligation outcomes in preterm neonates**

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Background

Pulmonary hypertension (PH) increases mortality in infants with bronchopulmonary dysplasia (BPD). As practice has shifted towards expectant management of patent ductus arteriosus (PDA), there is limited data guiding treatment with PH.

Methods

Retrospective single center cohort study of neonates <32 weeks gestation who underwent surgical PDA ligation before discharge. Ductal gradients by echocardiogram defined PH severity: severe PH as right to left shunting, mild-to-moderate PH as greater than half systemic pressure, no PH as less than half systemic pressure. Primary outcome was mortality. Secondary outcomes were length of stay (LOS), duration of ventilation, post-operative inotropes, steroids, systemic pulmonary vasodilators, and incidence of BPD.

Results

Eighty patients, median gestational age 25 (23-31) weeks, underwent surgical PDA ligation between 2010-2016. Ten had severe PH, 54 mild-to-moderate PH, and 16 no PH. Median age at surgery was 53 (10-171) for severe PH, 29.5 (10-233) for mild-to-moderate PH, and 32 (12-90) days in no PH (p=0.32).

Severe PH group had significantly longer LOS, 173 vs. 143 days (p=.05). PH cohort had higher surgical weight, 1.71 kg vs. 1.06 kg (p=0.04). All deaths occurred in the PH group (6% vs. 0%) with highest mortality occurring in severe PH, 10% vs 5.5% in mild-to-moderate PH (p=NS). No significant difference in ventilation, inotropes, steroids, pulmonary vasodilators, and BPD. Although, statistically insignificant, the PH group had higher rates of tracheostomies (18.8% vs. 6.25%).

Conclusion

Premature infants requiring PDA ligation with severe PH had longer overall LOS. All mortality occurred in the PH group. Underlying lung disease may contribute to PH development and longer LOS. More data is needed to determine effect of PDA on lung disease and the development of PH.