PROSTAGLANDIN E1 USE IN CONGENITAL DIAPHRAGMATIC HERNIA (CDH): A 13 YEAR REVIEW OF OUTCOMES (2000 – 2012) IN A SINGLE TERTIARY PAEDIATRIC ACADEMIC HEALTH SCIENCE CENTRE.

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Introduction: Pulmonary hypertension is difficult to manage in the newborn with Congenital Diaphragmatic Hernia (CDH). Vasodilation therapy can be used to address pulmonary vascular resistance. Successful off-loading of the right ventricle by maintaining the arterial duct using prostaglandin infusion during the newborn period is one therapeutic option.

Objectives: The objective of this study is to describe the epidemiology, clinical course and outcomes of CDH patients who received Prostaglandin E1 (PGE1) to manage pulmonary hypertension in a tertiary-level paediatric centre.

Methods: This is a single-centre, retrospective review of newborns admitted with CDH from January 1, 2000 to December 31, 2012. CDH patients with clinically significant pulmonary hypertension documented by pre-post ductal gradient and/or echocardiographic findings of systemic to suprasystemic right ventricular systolic pressures (RVSP) were treated with Prostaglandin E1 (PGE1) during the initial perinatal resuscitation period. Also included were 12 patients treated with PGE1 who had clinical signs of pulmonary hypertension but with subsystemic RVSP on baseline echocardiogram. Surgical repair was performed if the patient achieved hemodynamic and respiratory stability. Hospital records were abstracted for patient demographics, interventions and outcomes. Patients were excluded if they were late presenters (>1wk of age), were transferred from another institution post repair, or had diaphragmatic eventrations. Statistical analyses were performed using SAS.

Results: There were 47 patients treated with PGE1 compared to 134 cases in the control group (Table 1). In the PGE1-treated cohort, 31 (66%) were male, 41 (87%) had an antenatal diagnosis of CDH, with a mean gestational age at birth of 38 weeks (SD ±3) and a mean birth weight of 2.97kg (SD±0.78). During the preoperative resuscitation period 46 (98%) patients in the PGE1 cohort received High frequency oscillatory ventilation (HFOV) and 43 (96%) received inhaled nitric oxide (iNO) compared to 41% HFOV use and 31% iNO use in the control group. Systemic to suprasystemic RVSP was documented on baseline echocardiogram in 38 (81%) patients. Only 31 (66%) patients in the PGE1 cohort underwent CDH surgical repair, compared to 120 (90%) in the control cohort. The median age at repair (days) in the PGE1-treated vs. controls were 13 (IQR 6.5-21) vs. 4(IQR 3-6) respectively (p =<.0001). Primary repairs were more common in the control cohort (n=79, 66%) whereas patch repairs more common in the PGE1-treated cohort (n= 20, 65%). Survival to PICU discharge in the PGE1 group was 22 (47%) compared to 120 (90%) in the control group.

References: not applicable