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Introduction:
- Infants with congenital heart disease (CHD) and systemic-to-pulmonary artery (SPA) shunts often have feeding intolerance, requiring placement of gastrostomy tubes and/or fundoplication to maximize caloric intake.
- Infants with complex CHD and shunt dependent lesions are at high risk of adverse events during the perioperative period.
- Clinical pathway guidelines (CPG) have been shown to improve patient care and safety for other complex patients.

Objectives:
- Review the perioperative practices of 3 tertiary-care hospitals with large single-ventricle populations, where infants with shunt dependent palliated CHD underwent gastrostomy tube placement (GT) +/- Nissen Fundoplication (NF).

Methods:
- IRB-approved chart review was performed at 3 institutions of infants with SPA shunts receiving a GT and/or a NF during the year 2009 and June 2014.
- Data are presented as means +/- standard deviations.

<table>
<thead>
<tr>
<th>Male %</th>
<th>Institution 1 (n=14)</th>
<th>Institution 2 (n=26)</th>
<th>Institution 3 (n=11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Ventricles %</td>
<td>64%</td>
<td>69%</td>
<td>45%</td>
</tr>
<tr>
<td>Weight (mean kg)</td>
<td>4.9 +/- 1.47</td>
<td>3.26 +/- 0.58</td>
<td>5.9 +/- 1.50</td>
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<tr>
<td>Age (mean months)</td>
<td>3.75 +/- 3.66</td>
<td>2 +/- 1.12</td>
<td>4.4 +/- 1.6</td>
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</tbody>
</table>

**TYPE OF SHUNT**
- BT: 2 (14%)
- SANO: 7 (50%)
- other: 5 central AP shunts

**ANTICOAGULATION**
- Aspirin: 14 (100%) 21 (81%)
- Heparin: 0 2 (7.7%)

**PROCEDURE**
- Laparoscopic Nissen with G-tube
- Open gastrostomy

**Disposition**
- ICU
- Floor

**Adverse Events**
- Intraoperative
- Post-operative (+24hrs)
- 30 day morbidity
- 30 day mortality

Results:
- 51 patients were included with a mean weight 4.46 +/- 1.58 kg and mean age of 3 +/- 2.3 months.
- 50% of those who underwent G tube alone were extubated in the OR.
- 62-91% of patients required intensive care admission postoperatively.
- Combined median adverse event (AE) rate for the three institutions was 7.1% (range 0-7.7%).
- Variation on type of surgery and intraoperative anesthesia monitoring and care were noted.

Discussion:
- The median adverse event rate in this multi-institutional case series is comparable to that previously reported.
- Developing perioperative CPG for these high-risk patients is warranted with potential reductions in AE.

References:
1. Ramamoorthy C, Haberkamp C, Bharanker S, Domino K, Posner K, Campos J, Murray J. Anesthesia-Related Cardiac Arrest in Children with Heart Disease: Data from the Pediatric Perioperative Cardiac Arrest (POCA) Registry

Table 1: Perioperative Management