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#### Abstract

**Background/Purpose:** Infants with congenital heart disease (CHD) have a higher incidence of gastro-esophageal reflux disease (GERD) and frequently require Nissen fundoplication (NF). Non-cardiac surgery in patients with single ventricle physiology is associated with increased morbidity and mortality that includes hemodynamic instability, pulmonary hypertension, prolonged mechanical ventilation and necrotizing enterocolitis (1,2). At our institution the surgical preference is for open NF. We sought to determine the perioperative risk factors in patients with CHD undergoing open fundoplication.

**Methods:** With IRB approval, a retrospective review of all patients who underwent NF after surgical repair of CHD from January 1, 2004 to July 31, 2012 was performed. Data collected included patient demographics, cardiac anatomy (single vs. two-ventricle), intraoperative monitoring and complications (hemodynamic instability or need for intervention) and postoperative morbidity (escalation of care, prolonged intubation, infection) and mortality.

**Results:** Thirty-five patients were identified and divided into single ventricle (SV, n=13) or two ventricle (2V, n=22) groups. There were no differences between groups with regard to age, weight or operative time. The majority (85%) of the SV patients had undergone 1st stage palliation and were therefore shunt dependant. Five patients ( 3=SV, 2=2V, NS) had intraoperative hemodynamic instability requiring 10 interventions (fluid or epinephrine bolus) and one patient (SV) had an acute shunt thrombosis rescued by emergent cardio-pulmonary support. Fourteen postoperative complications occurred in 9 patients and were more common in the SV group (6=SV, 3=2V). Hemodynamic instability requiring escalation of care (increased inotropes, mechanical ventilation) was seen in 6 patients, 3 had evidence of infection and one patient suffered a stroke. There was no mortality in this cohort.

**Conclusion:** Nissen fundoplication in patients with repaired or palliated CHD is associated with significant intra and postoperative hemodynamic instability. Those patients with SV physiology are at increased risk and require careful selection and perioperative management.

#### References:

1. Garey CL et al. Outcomes in children with hypoplastic left heart syndrome undergoing open fundoplication. *J Ped Surg* 2011;46:859-862.
  2. Slater B et al. Outcomes after laparoscopic surgery in neonates with hypoplastic left heart syndrome. *J Ped Surg* 2007;42:1118-1121.
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