INTRODUCTION/STUDY QUESTION:

Infants with left ventricular outflow tract obstruction due to interrupted aortic arch or aortic atresia (AA) with a ventricular septal defect (VSD) and 2 adequate ventricles pose a surgical challenge. The Yasui procedure can be performed in either a single operation or staged repair, and selection criteria varies.

We aimed to first identify the patients who received a Yasui operation, record their echocardiographic (echo) data, and describe our anesthetic technique.

METHODS:

This is a retrospective cohort study of our institution’s patients who received the Yasui operation as either a primary or staged repair from 1994-2014. We examined each subject’s echocardiography data and anesthetic technique.

RESULTS: 5 patients underwent a Yasui operation during the study period. Detailed echo information was available for 4 patients. 3 patients had AA, 1 had severe subaortic obstruction, and 1 had an interrupted aortic arch. The sample size was insufficient to obtain non parametric testing, and would require the inclusion of 2-3 additional patients. As such, simple statistics using median values and interquartile range were selected to analyze the data, as the sample size was too small to draw meaningful conclusions for mean and variance data. All the patients had moderate to severely hypoplastic aortic valves (median Z-score -3.7, range -2.9 to -4.5) large VSD, normal size mitral valves (0.5, 0.2 to 0.8) and left ventricles in 3 patients (end diastolic dimension Z score, range) (-1.1, -0.2 to -3.3).

The anesthetic technique is displayed in table 3. 5 patients received general endotracheal anesthesia with invasive monitoring lines with supplemental IV fentanyl or midazolam with average doses being 178.2 mcg/kg and 0.76 mcg/kg respectively.

Phentolamine was used in all cases to counter the systemic vascular resistance during bypass coping. Due to the long aortic clamp times and ACP/IA, the infantile myocardium required more form of inotropic support in the post bypass period.

DISCUSSION:

The Yasui operation is a rare surgical strategy at our institution reserved for patients with AA or near atresia, normal sized LV and MV, and a large VSD. Future aims for this pilot project include seeing if echo selection criteria can be determined for these patients, and compare TCH’s criteria as it relates to publications. Literature searches reveal no description of the anesthetic technique for the Yasui. In 20 years, the anesthetic technique varied little despite institutional practice changes.