

P-248

Before and after: Interventions and Tetralogy of Fallot repair

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Introduction:

Risk factors for re-intervention after repair of Tetralogy of Fallot (TOF) include primary repair at less than 28 days of age, small pulmonary arteries and a staged operative strategy. Recent evidence has suggested that palliation to the right ventricular outflow tract (RVOT) is associated with increased re-interventions. We aimed to determine whether having a catheter or surgical procedure prior to repair resulted in an increased risk of post-repair interventions in our patient population.

Methods:

Retrospective single centre study. Inclusion criteria were all patients who had undergone TOF repair between 1/1/2007 to 31/12/2017. Data was obtained from the hospital database. Exclusion criteria were those with pulmonary atresia and ventricular septal defect variants. Patients were divided into a primary repair group and a staged group. Prior intervention was specified as either catheter intervention or surgical shunt. Re-interventions post repair included redo surgery, further catheter interventions or pulmonary valve replacement.

Results:

In the study period 219 patients underwent TOF repair. 179 (82%) patients had primary repair at a mean of 252 days of age (range 6-2844). 39 patients (18%) were in the staged group and had 1 or more interventions prior to full repair, occurring at a mean of 321.47 days (range 53-1523). In the staged group 15(38%) had systemic to pulmonary artery shunt, 24(62%) had a catheter intervention. Mortality following full repair was 0% at 30 days. There were 3 late mortalities at 4, 5 and 17mths. Re-intervention following full repair was 38 (22%) in the primary repair group and 1 (45%) in a staged group ($p < 0.002$). Neither placement of a transannular patch ($p = 0.21$) or having a previous shunt ($p = 0.17$) were associated with increased risk of interventions post repair. Pulmonary valve replacement was required in 7 patients in the study period, all of whom had undergone primary repair.

Conclusions:

Patients who underwent a staged approach to TOF repair were more likely to require further intervention post repair. This was especially evident in those undergoing a catheter intervention. This is important information when planning treatment and for counselling families regarding future interventions and their timing.