

Outcomes of primary surgical repair of Tetralogy of Fallot in patients under 3 months of age

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Introduction:

Classical management of symptomatic babies with Tetralogy of Fallot has involved placement of a Blalock-Taussig shunt followed by complete repair. Some have suggested advantages to early complete surgical repair instead of initial palliation. Here, we compare early and mid-term outcomes for babies undergoing very early complete repair of Tetralogy of Fallot.

Methods:

Patients undergoing complete surgical repair of Tetralogy of Fallot at our institution from 2005 to 2015 at <3 months of age were retrospectively reviewed and compared to a control group of older children matched by anatomical diagnosis and outflow tract intervention.

Results:

Fifteen index cases (group A) and 15 controls (group B) were identified. At surgery median age was 42 days and weight 4.2kg in group A, and 132 days and weight of 6.1kg in group B. Comorbidities were more common in group A (5/15) than group B (3/15). One patient in each group had a diagnosis of Double Outlet Right Ventricle. None had significant coronary abnormalities. Mean pulmonary valve z-score was -3.1 (95%CI -3.6 to -2.5) in group A, and -2.1 (95%CI -2.6 to -1.6) in group B ($p=0.01$). In each group, 12 had transannular patches placed.

Peak inotrope score (23.3 vs 12.5, $p<0.01$) and PICU length of stay (4.6 days vs 2.7 days, $p=0.01$) were found to be higher in group A, compared to group B. However, bypass and cross clamp times, duration of intubation and total length of stay did not differ. On multivariable analysis operation at <3 months of age, pulmonary valve z-score or presence of comorbidities were not associated with increased duration of intubation, length of PICU stay or total length of stay. Pulmonary valve z-score and presence of comorbidities, but not age at the time of repair, were found to be independent predictors for increased peak inotrope score.

Conclusions:

Very early complete repair of Tetralogy of Fallot is associated with increased initial inotrope requirement and duration of PICU stay. However, mortality, and total duration of admission are comparable to those of older patients. We suggest that early complete surgical repair is an important management option in these patients.