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Congenital Heart Disease

CONTEMPORARY SINGLE-STAGE TETRALOGY OF FALLOT REPAIR: EXCELLENT SURVIVAL BUT PHYSICAL OR NEURODEVELOPMENTAL COMPROMISE IN ONE FIFTH

Poster Contributions

Poster Hall B1

Sunday, March 15, 2015, 3:45 p.m.-4:30 p.m.

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Background: Tetralogy of Fallot (TOF) is considered a low risk lesion because perioperative mortality has fallen dramatically. We investigated late morbidity after contemporary repair.

Methods: All 458 TOF repairs (2000 - 2012) were analyzed using competing risks techniques. Data were abstracted from clinical records with cross-sectional follow-up in 2013. For all 233 followed locally, every clinic consultation was reviewed for evidence of physical limitation or neurodevelopmental delay.

Results: Palliative procedures were rare (33; 7%): surgical shunt=3, RVOT/PDA stent=20, RVOT balloon=10. The remaining 93% had primary repair at median age 180 days; 6% were <60 days and 2% were <30 days. Strategy: valve-sparing=65%, trans-annular patch=30%, conduit=5%. Four deaths have occurred (1%) - all surgically related - and 1 resuscitated sudden cardiac death. Freedom from re-operation was 85±2% at 8 years and late trans-catheter re-interventions (61) were undertaken in ~20% of all children within 5 years, mostly for PA stenosis. Of the 233 locally followed children, 47 (20%) have genetic syndromes. In the 186 non-syndromic children, 22% have some physical limitation or neurologic deficit and 6% have evidence of neurodevelopmental delay (table). Gestational age was the only reliable non-cardiac and non-surgical determinant of late developmental health.

Conclusion: Future efforts should focus on mitigating risk factors - especially prematurity - that lead to physical/neurodevelopmental problems.

N=190 non-syndromic with late follow-up	N	%
Developmental delay	11	6
Some physical or developmental deficit	43	22
Physically active	163	86
Predictors of developmental delay (univariate)		P
Impaired LV function at baseline		.045
Impaired RV function at baseline		.047
Aortic regurgitation at baseline		.014
Worse LV ejection fraction at baseline		.02
Younger gestational age		.06
Birth weight		.34
Predictors of physical/developmental deficit (multivariate)		P
Younger gestational age at birth		.001
2 nd bypass run for RVOT revision during repair		.05
Repair using conduit		.03
Birth weight		.47