

Reoperation for Right Ventricular Outflow Tract Obstruction After Arterial Switch Operation for TGA and Aortic Arch Obstruction

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Objective

Right ventricular outflow tract obstruction (RVOTO) is one of the reasons for late re-interventions after repair of transposition of the great arteries (TGA) with aortic arch obstruction (AAO). Aim of the present study was to identify predictors of reoperation for RVOTO in patients who underwent ASO and arch repair for TGA with AAO.

Methods

Since 1977, 394 ASOs were performed: TGA/IVS (243), TGA/VSD (119), Taussig-Bing (32). TGA and AAO was repaired in 42 patients (TGA/IVS 5, TGA/VSD 13, Taussig-Bing 24) with (coarctation 20, arch hypoplasia 5, coarctation and hypoplasia 10, aortic arch interruption 7). In these 42 patients operation reports and 2D-echocardiographic follow-up data were reviewed. We evaluated position of the great arteries, coronary artery anatomy, and diameters of RVOT, aortic valve annulus, aortic sinotubular junction, pulmonary valve annulus, and transverse aortic arch previous to ASO. Four patients were lost to follow-up, reliable echo data were available in 21. Cox proportional hazard models were performed to examine predictors of reoperation. Reinterventions for solitary supra-avalvular RVOTO were excluded.

Results

Median age at ASO was 19 (range: 1-4627) days. The RCA crossed the RVOT in 5 patients. AAO was repaired concomitant with ASO in 37 patients; in 5 coarctation was repaired at a median of 605 (range: 15-1093) days after ASO. Early mortality occurred in 6 patients, late in 4. Nine (TGA/VSD 2, Taussig-Bing 7) had 12 reoperations for (sub)valvular RVOTO. One patient died after reoperation. Taussig-Bing anomaly was a significant predictor of in-hospital mortality ($p=0.029$) and reoperation ($p=0.041$). Higher aortic valve Z-score significantly decreased the reoperation risk ($p=0.021$).

Conclusions

After ASO and AAO repair, Taussig-Bing anomaly predicts a higher chance of mortality and reoperation for RVOTO. A higher aortic valve Z-score reduces the chance of reoperation for RVOTO. RCA crossing the RVOT complicates RVOTO relief