Cardiac and Multi-Organ Transplantation for End-Stage Congenital Heart Disease

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Introduction

Cardiac transplantation for patients with complex congenital heart disease (CHD) has been associated with increased morbidity and mortality compared to other transplant patients. We report our single center experience with patients who had cardiac and multi organ transplantation for end stage CHD.

Methods

We reviewed records for all patients with CHD transplanted at the Mayo Clinic in Rochester, Minnesota, USA, from January 1990 through June 2012. Patients with cardiomyopathy (including hypertrophic cardiomyopathy) were excluded.

Results

Overall, 45 patients had cardiac transplantation for end stage CHD (mean age 26.1 ± 18.4 years; range 1 month to 65 years). Congenital diagnoses included single ventricle physiology (N=16), d-transposition of the great arteries (N=8), ventricular or atrial septal defects with subsequent functional deterioration (N=4), Ebstein anomaly (N=6), tetralogy of Fallot (N=4), congenitally corrected transposition (N=4), and complex left sided lesions (N=3). Patients had a mean of 2.6 (0-8) prior cardiac operations, including 37 (82%) with a prior sternotomy and 15 (33%) with a prior thoracotomy. There were 7 (16%) with a history of Fontan palliation prior to transplantation. Two patients had combined heart/liver transplantation; one had heart/kidney transplantation. Ten patients (22%) required additional procedures (most commonly pleurodesis or wound exploration). Patient survival at 1, 5, and 10 years was 88%, 86%, and 69%, while graft survival at 1, 5, and 10 years was 88%, 86%, and 58%. Over the same era, ISHLT reported patient survival in patients with cardiomyopathy was 85%, 72%, and 56%. Over a mean of 8.7 ± 6.2 years of follow-up, rejection requiring treatment was documented in 35 patients (78%). Eleven patients (24%) have been diagnosed with neoplasia (8 skin, 2 lymph, 1 other). Three patients (7%) have required retransplantation. Four patients (9%) have developed significant coronary vasculopathy; one was retransplanted, while three died 10 ± 4 years after transplantation.

Conclusions

With appropriate patient selection and post transplant monitoring, survival for patients with complex end stage CHD can be equivalent to patients with cardiomyopathy. Multi organ transplants are an option for selected patients with CHD.