

Pediatric cardiac transplantation after Fontan failure : A single-institution experience

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Introduction: Despite the excellent outcomes in the current era after the Fontan operation, it continues to have an inherent risk of failure. Cardiac transplantation could be an option for treating these patients; however, the indications for, timing of, and outcomes after, transplantation remain undefined. We reviewed our own institutional experience with transplantation for failed Fontan.

Method: The medical records of pediatric patients with heart transplantation in Asan Medical Center, since 1997 were reviewed retrospectively. Among the 72 patients who underwent cardiac transplantation (42 males and 30 females, median age at transplant is 12.6months), 7(9.7%) had previous history of Fontan operation (3 male, 4 female). Extracardiac conduit Fontan procedure was performed in all patients.

Result: For 7 eligible patients, the median age at Fontan procedure and heart transplantation is 3.8 years and 14.3 years, respectively. The mean interval from Fontan to transplant is 120.4 months. The most common indications for transplantation is ventricular dysfunction (6 patients, 85.7%), and 1 patient had uncontrolled protein-losing enteropathy (PLE). Only 1 patient shows high value of panel reactive antibody (PRA) before transplantation. When transplant was performed after desensitization therapy, no sign or symptom of acute rejection was seen (4 months of follow up). The mean duration of follow up is 41.1 months. One expired from acute rejection (42.4 months after transplantation), 1 had Cytomegalovirus infection and 2 had tacrolimus induced Diabetes Mellitus. No other significant complication associated with cardiac transplantation was showed.

Conclusion: Transplantation is an acceptable treatment for patients with a failed Fontan. As the numbers of patients with Fontan operations are increasing, the number of children, adolescents, and young adults requiring late rescue therapy with heart transplantation will increase. With the sparse availability of hearts for transplantation, careful allocation of recipient who underwent Fontan procedure will be need. And moreover, multi-centered large scale study for pre and post-transplant management appropriate for those patient should be performed.