

Effect of Mechanical Circulatory Support Bridging to Pediatric Heart Transplant Outcomes

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INTRODUCTION

In the last 40 years, orthotopic heart transplantation has been established as a realistic treatment strategy for infants and children with severe forms of congenital heart disease and cardiomyopathy. The number of heart transplants in the pediatric patient population has been growing increasingly. Many centers are starting their pediatric cardiac transplant programs every passing day. Due to the donor shortage and the prolonged waiting time in pediatric heart transplant, mechanical circulatory support is frequently used to bridge patients to transplantation, and newer technologies are currently in development.

OBJECTIVES

The purpose of this study was to introduce the results of our pediatric heart transplants and to analyze our outcomes.

MCS Support:

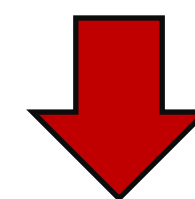
- HVAD → 7
- HVAD+RVAD → 2
- Berlin Heart → 1
- ECMO → 1

METHODS

Twenty-four pediatric patients who underwent heart transplantation between 2001 and 2017 were included in this study. Twelve patients were male and nine of the patients were under 10 years of age. (one was less than 1 year, two were between 1-5 years, six were between 6-10 years, fifteen were between 11-18 years). Dilated cardiomyopathy was the most frequent cause of heart failure (eleven patients with dilated cardiomyopathy, seven with non-compaction cardiomyopathy, four with restrictive cardiomyopathy, one with hypertrophic cardiomyopathy and one has arrhythmogenic right ventricular cardiomyopathy).

Mortality:

Early → 4
Late → 4



16 patients are on follow-up

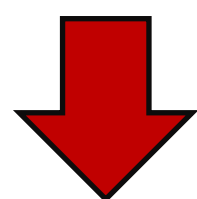
RESULTS

Nine patients were bridged to transplant with adult long-term left ventricular assist device (Seven with HVAD, two with HVAD as an LVAD + ECMO as an RVAD), one patient was bridged with Berlin Heart and one other patient was bridged with ECMO to the heart transplant. No early mortality was encountered in all these bridged patients. There were four in-hospital mortality in non-bridged patients and late mortality were observed in four patients (two bridged and two non-bridged). The remaining 16 patients out of 24 were able to be followed-up uneventfully till April 2017.

CONCLUSION

In pediatric patient population, heart transplant can be performed as safely as the adult heart transplants with better mortality and morbidity rates. Additionally, bridging with durable adult left ventricular assist device to heart transplant can be done safely in the pediatric population.

2001-2017
24 pediatric patients
12 girls/ 12 boys



24 pediatric Tx

- < 1 yr → 1
- 1-5 yr → 2
- 6-10 yr → 6
- 11-18 yr → 15

Etiology

- DCM → 11
- Non-compaction → 7
- RCM → 4
- HCM → 1
- ARVD → 1