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Effect of Mechanical Circulatory Support Bridging to Pediatric Heart Transplant

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Introduction: In recent times, the number of heart transplants in the pediatric patient population has been growing increasingly. Many centers have started their pediatric cardiac transplant programs every passing day. The purpose of this study was to introduce the results of our pediatric heart transplants and to analyze our outcomes.

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 (Ten patients with dilated cardiomyopathy, seven with non-compaction cardiomyopathy, four with restrictive cardiomyopathy, one with hypertrophic cardiomyopathy and one has arrhythmogenic right ventricular cardiomyopathy).

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 LVAD 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 and late mortality was observed in four patients. The remaining 16 patients out of 24 were able to followed-up uneventfully till April 2017.

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