

**Left Ventricular Assist Device Support for 2 Months Followed by V-A ECMO for 68 Days as a Bridge to Cardiac Transplantation in an Infant with Dilative Cardiomyopathy**

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**Introduction:**

Infants and young children are considered the most difficult group to bridge to orthotopic heart transplantation. Due to donor shortage, many patients die while on waiting list. Although pumps designed for small children have been introduced and are used as a bridge to transplantation or recovery, mid-term or long-term mechanical circulatory support (MCS) for small children with heart failure is still difficult.

**Case report:**

We report on a 7-month-old male infant (weight 8 kg) with advanced heart failure due to idiopathic dilative cardiomyopathy, who was successfully supported for 130 days with left ventricular assist device (LVAD) with centrifugal pump (62 days) and V-A ECMO (68 days) before orthotopic heart transplantation. Infant developed pulmonary oedema and oliguric renal failure due to progressive left ventricular failure while on Eurotransplant high-urgent heart transplant list. The decision was made to implant the Levitronix<sup>®</sup> centrifugal pump. Attempts at weaning were unsuccessful. Long-term pediatric MCS system (BerlinHeart Excor) was not available at our institution at the time. Infant developed *Serratia marcescens* mediastinitis with septic shock. Support was switched to V-A ECMO because of ARDS and worsening right ventricular function. Renal function recovered after initiation of MCS. There were no thromboembolic events. No graft failure, acute rejection or infection were noted in the early posttransplantation period. 18 months after transplantation the child is doing well. Intensive developmental therapy resulted in significant improvement in functional status.

**Conclusion:**

Infants with end stage heart failure, are the most challenging group to bridge to heart transplantation with currently available MCS support systems. To our knowledge, LVAD support with the centrifugal pump followed by V-A ECMO in an infant of such duration as a bridge to successful heart transplantation has previously not been reported.