

Impact of preoperative mechanical circulatory support on the postoperative course in heart transplanted pediatric patients

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Introduction: Similar to the adult population an increasing number of children are bridged to heart transplantation (HTx) by the means of various types of mechanical circulatory support (MCS). The use of these devices does not have a negative impact on the long term outcomes in adults, yet relatively limited data are available, especially upon the minor post HTx complications in children.

We reviewed our follow-up data on a comprehensive set of post HTx complications in MCS vs non-MCS population

Patients and methods: 11 MCS patients were included alongside 29 non-MCS subjects. Mean age at HTx was 108 and 101 months in the MCS and non-MCS group respectively. Overall mean follow up was 48.95 months (43.6/51 MCS/non-MCS). MCS devices included paracorporeal Berlin Heart biVAD in 3, Berlin Heart LVAD in 3, Levitronics LVAD in further 3, and intracorporeal Heartware in one. One patient was a cross-over from Levitronics to Berlin Heart LVAD

Results: The ground-lying cardiac condition in the MCS group was cardiomyopathy (n=8) and congenital heart disease (n=3). Allosensitisation, which partially responded to desensitization therapy was observed in one assisted case. Overall mortality did not differ between groups (5/29 compared to 4/11 deaths). Clinically and/or histologically relevant rejection, that required intervention differed significantly 5/11 (45.5%), compared to 4/28 (14.2%) cases in the non supported group (p=0.038). Occurrence of HTx related infections, CMV and EBV replication, were comparable in both groups (EBV: 7/29 compared 1/10 cases, CMV: 2/29 compared to 2/11) PTLD was identified exclusively in the non supported group 2/29). Post-HTx diabetes (DM), and autoimmune diseases (AID) were observed in very small number of cases (DM: 2/1 patients in the two groups, AID: 2/1 cases in the two groups)

Conclusions: Similar survival rates can be expected in both bridged and non-bridged paediatric patients following HTx. Transplantation related infections, and other characteristic HTx associated morbidities like diabetes, and AID appeared in similar frequencies. However, the incidence and severity of rejections appears to be more pronounced in the MCS group, which seems to be independent of pretarnsplant allosensitisation.