
This study is a retrospective analysis of a single center’s experience with using mechanical circulatory support as a bridge to cardiac re-transplantation. From year 2000 to 2014, 84 patients were listed for re-transplantation at Columbia University Medical Center. Among this cohort, 15 patients were bridged with MCS, 48 patients underwent re-transplantation, and 24 patients died. Patients who underwent mechanical circulatory support were classified as INTERMACS profile 1. The patients (81% male) were an average age of 49 years. The mean time to relisting was 8.2 ± 5.1 years, and the indication for relisting was cardiac allograft vasculopathy (CAV) in 76.2%, followed by acute rejection in 9.5% and chronic rejection in 9.5%. The MCS group was younger (35.5 ± 10.6 vs. 51.6 ± 12.6 years, p = 0.0001) and tended to have a shorter time from initial transplant to relisting (6.0 ± 4.4 years for MCS vs. 8.7 ± 5.2 years, p = 0.07). Significantly more of these patients had acute rejection (33.3% in the MCS group), whereas CAV predominated (82.6%) in the non-MCS group (p = 0.001).

Overall 1-year survival to re-transplantation was 81.3%. No significant difference in waiting list survival was noted in those with and without MCS. Death from cardiac arrest or multi-organ failure with infection was more frequent in the medically managed group (p = 0.002). The MCS group had a higher proportion of patients dying from refractory cardiogenic shock, although the number of deaths in this group was small.

When analyzed by era, centering on the July 2006 UNOS allocation policy change, for the era after the change (Era 2), there was more MCS use overall (23.4% vs. 10.8%, p = 0.13), and acute rejection became a more common indication. Within the current era, the waiting time to re-transplantation was shorter for the MCS group (142 vs. 567 days, p=0.01), but the shorter waiting time did not result in improved waiting list mortality. Devices commonly used were biventricular support devices such as the Centrimag BIVAD, Thoratec IVAD, Heartware HVAD, and the SynCardia TAH. Immunosuppression was maintained with the use of a single agent: Prednisone between 10-30 mg daily. Survival after re-transplantation was acceptable for both strategies. At 1 year and 3 years after re-transplantation, 100% of MCS patients were alive, and survival for medically treated patients was 81% at 1 year and 68% at 3 years. The main limitations of the study are its retrospective nature, single center experience, small sample size, and unmatched groups with higher acuity patients in the MCS cohort. No ideal device was identified for this strategy.

This study demonstrates that use of MCS as a bridge to cardiac re-transplantation is feasible and safer in the current era with close monitoring of immunosuppression. No increased infection risk was noted when bridging with MCS. Although, no ideal device was identified to bridge the patients to re-transplantation, this study adds to the evidence that MCS can be used as a bridge to cardiac re-transplantation.
Grady, KL; et al. “Change in health-related quality of life from before to after destination therapy mechanical circulatory support is similar for older and younger patients: Analysis from INTERMACS.” J Heart Lung Transplant. 2015 Feb; 34(2): 213-21.

This study evaluates the age related outcomes in health related quality of life (HRQOL) among patients with destination therapy in the INTERMACS registry. The INTERMACS registry includes data from 1,470 continuous-flow DT LVAD patients at 108 participating institutions from January 21, 2010 to March 31, 2012. Patients were divided into three cohorts: <60 years of age (n = 457); 60 to 69 years of age (n = 520); and ≥70 years of age (n = 493). HRQOL was measured using the generic EuroQol instrument (EQ-5D-3L). Data were collected pre-implant and at 3, 6 and 12 months post-implant.

The authors noted that HRQOL improved in all patients. Generally, older patients reported better HRQOL than younger patients pre-implant (≥70 years; 60 to 69 years; and <60 years; p < 0.0001) and at 1 year post-implant (≥70 years; 60 to 69 years; <60 years p = 0.01) using the EQ-5D visual analog scale (VAS). The magnitude of improvement in EQ-5D scores from pre-implant to 1-year post-LVAD implant was similar in all age groups (p = 0.77). Factors associated with improvement in HRQOL from pre-implant to 1 year after implant were a lower VAS score pre-implant and fewer re-hospitalizations post-implant (R2 = 61.3%, p < 0.0001). The main study limitations included use of a generic HRQOL survey instead of disease-specific or treatment-specific surveys and survivor bias. The study also did not include other socioeconomic factors like family support, which would affect HRQOL. This report highlights the improvement in HRQOL in patients of all age groups after DT VAD implantation. Recurrent hospitalization after VAD implantation is the main cause of decline in QOL after VAD implantation.

Trachtenberg, BH; et al. “Persistent blood stream infection in patients supported with a continuous-flow left ventricular assist device is associated with an increased risk of cerebrovascular accidents.” J Card Fail. 2015 Feb; 21(2): 119-25.

This is a single center retrospective analysis of 149 patients with continuous flow ventricular assist devices implanted between 2008-2012. The mean age was 55 years; 60% had ischemic cardiomyopathy. The median duration of support was 630 days. Among these patients, 45 patients had bacteremia (28 persistent, defined as the presence of the same organism on repeat blood cultures >72 hours apart despite treatment with antibiotics, and 17 non-persistent). During follow-up, cerebrovascular accidents occurred in 19 patients; patients with persistent bacteremia were more likely to develop a CVA. Patients with higher BMI demonstrated a trend towards increased infection; *pseudomonas* and *staphylococcus* were the most common organisms involved; with the drive-line being the most common site of entry. Persistent bacteremia was naturally a predictor of all-cause mortality (58% vs 34% during follow-up). Hemorrhagic CVA was associated with 100% mortality. In multivariate adjusted analyses, persistent bacteremia and persistent *pseudomonas* infection were associated with occurrence of CVA.

Notwithstanding the small event rates and study size, this study conclusively demonstrates that persistent bacteremia during LVAD support is associated with higher mortality and likelihood of having a CVA. Interestingly, the presence of *pseudomonas* infection was associated with intracranial bleeds rather than ischemic cerebrovascular events.
ARTICLES OF INTEREST:

Circulation:


JACC:


JACC – Heart Failure:

Ho CY, et al. Diltiazem Treatment for Pre-Clinical Hypertrophic Cardiomyopathy Sarcomere Mutation Carriers: A Pilot Randomized Trial to Modify Disease Expression. JACC Heart Fail. 2015; 3(2): 180-188.


Nassif, ME, et al. Clinical Outcomes With Use of Erythropoiesis Stimulating Agents in Patients With the HeartMate II Left Ventricular Assist Device. JACC Heart Fail. 2015; (3)2: 146-153.

Annals of Thoracic Surgery:


Journal of Cardiac Surgery:


Journal of Cardiac Failure: