

mechanism by ECM degradation and cytoskeleton stabilization in these patients. Our molecular findings were supported by animal model of HF and recovery where we see genes involved in β -catenin and microtubule binding to be activated in the recovery cohort.

Conclusion: Overall, our data suggests ECM regulation and cytoskeleton organization as candidate pathways in promoting myocardial reverse-remodeling. Further mechanistic studies are required to validate these findings.

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Outcomes of Explanted LVAD Patients with Heart Failure Relapse Requiring Heart Replacement Therapies: A VAD Wean Registry Analysis

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Purpose: Despite outstanding long-term survival in LVAD patients explanted for myocardial recovery, a subset will have heart failure (HF) relapse requiring heart replacement therapies (HRTs). We evaluated the incidence and long-term outcomes of HRTs among patients undergoing LVAD explant.

Methods: VAD WEAN is an international, multicenter retrospective registry including patients undergoing LVAD explant. We evaluated the 1-year and 10-year incidence of HRTs (re-LVAD implant and heart transplantation [HT]) following LVAD weaning. The primary outcome was all-cause mortality following HRTs. Kaplan Meier (KM) curves were used to evaluate the incidence of the primary outcome. Follow-up was censored at last available follow-up.

Results: 491 patients (female gender 34.8%, mean age 43 years, ischemic cardiomyopathy 12.1%, INTERMACS ≤ 3 86.7%) underwent LVAD explant after a median of 1.2 (interquartile range [IQR] 0.7-2.2) years from implant, of whom 84.7% for myocardial recovery. Of these, 361 (73.4%) were alive at a median of 4.4 (IQR 1.4-8.0) years after explant. KM estimate for 10-year survival was 62.6%. 63 (12.8%) patients required HRTs (n=31 [6.3%] re-LVAD implant, n=37 [7.5%] HT) after a median of 1.1 (IQR 0.4-4.4) years after LVAD explant. KM estimates for HRTs were 6.8% at 1 year and 20.8% at 10 years. Among patients undergoing re-LVAD implant, estimated 1-year survival was 66.6% and 10-year survival 15.8%. Among patients undergoing HT, estimated 1-year survival was 79.3% and 10-year survival 71.0%.

Conclusion: The long-term survival of HF patients weaned from LVAD support appears similar to contemporary post-HT survival with only one in five patients experiencing HF relapse requiring HRTs at 10 years. In these patients with HF relapse the outcomes of HRTs were favorable.



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Does Partial Myocardial Recovery After cf-LVAD Impact the Risk of Cardiovascular Death and Right Heart Failure Beyond One Year?

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Purpose: Myocardial recovery following LVAD implant has traditionally been reported as a dichotomous endpoint with success defined as device explant. We sought to investigate the association of partial myocardial recovery on long-term outcomes in patients who remain on LVAD support.

Methods: Adult cf-LVAD pts in STS InterMACS (6/1/14-6/30/23) with baseline LVEF < 30% and alive on device at 12m were included. Pts were excluded if follow up LVEF was not available. Partial recovery was defined as 12m LVEF > 30%, without device explant. EF categorized as < 20%, 20-29, 30-39, 40-49, \geq 50. Primary outcome was cardiac death (CVD) or right heart failure (RHF) event after 12m. KM curves compared survival between LVEF groups.

Results: The study cohort included 13,044 pts alive at 1yr with a pre-implant LVEF < 30%. Conditional survival at 5-yr for the overall cohort was 72.3%. The conditional incidence at 5-yr of late RHF (n=1262) or CVD (n=968) was 17.1%. LVEF at 12m improved to > 30% in 1597 (12%) [1340 pts (10.27%) EF 30-49%, and 257 pts (1.97%) EF > 50%]. Pts whose LVEF improved to > 30% at 12m were less likely to have CVD/RHF compared to those whose LVEF remained < 30% with better 5yr event-free survival (75.4% vs 71.9%; p=0.01) (Figure), but no difference in all-cause 5yr mortality. Event-free survival at 5-yr was similar in those with partial (EF 30-49%) vs full recovery (>50%). Differences in CVD/RHF associated with 12m LVEF > 30% were larger when restricting the cohort to those with baseline EF < 20%.

Conclusion: Partial recovery of baseline LVEF > 30% at one year after cf-LVAD was associated with a small but significantly reduced subsequent 5yr risk of late RHF and CV death. Changes in LVEF may reflect more global myocardial recovery, including RV function. The facilitation of partial recovery through device and pharmacologic optimization may further reduce long-term adverse events.

FIGURE: Freedom from CV Death or RHF: 12mo Partial Recovery (EF > 30%) vs No Recovery (<30%) (conditional on 1yr survival)

