WEANING FROM VENTRICULAR ASSIST DEVICES AFTER MYOCARDIAL IMPROVEMENT IN PATIENTS WITH CHRONIC CARDIOMYOPATHY: FEASIBILITY AND PREDICTABILITY OF LONG-TERM SUCCESS

ACC Oral Contributions
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Background: Unloading-promoted reversal of heart failure (HF) allows long-term transplant-free outcome after ventricular assist device (VAD) removal. However, because few patients with chronic cardiomyopathy (CCM) were weaned from VADs (the majority only recently, the long-term outcome of patients and the reliability of criteria used for weaning decisions to predict long-term post-weaning success is barely known. After 15 years of weaning experience we assessed this issue.

Methods: In 47 patients with CCM as the underlying cause for HF, who were part of a total of 90 patients weaned from bridge-to-transplant designed VADs since 1995, we analyzed data on cardiac morphology and function collected before VAD implantation, echocardiographic parameters recorded during “off-pump” trials, duration of HF before implantation and stability of recovery before and early after VAD removal. Before VAD implantation the patients had LVEF values of 10% - 20%.

Results: Post-weaning 5-year freedom from HF recurrence reached 66%. Only 5 patients (10.6%) died due to HF recurrence or weaning-related complications. Pre-explantation “off pump” LVEF of ≥ 50% and ≥ 45% revealed predictive values for cardiac stability lasting ≥ 5 years after VAD removal of 91.7% and 79.1%, respectively. With each unit of LVEF reduction, the risk of HF recurrence became 1.5 times higher. The predictive value of LVEF ≥ 45% also became > 90% if additional parameters like pre-explantation LV size and geometry, stability of unloading-induced cardiac improvement before VAD removal and HF duration before VAD implantation were also considered. Definite cut-off values for certain parameters (including tissue-Doppler derived LV wall motion velocity) allowed formulation of weaning criteria with high predictability for post-weaning stability, also in patients with incomplete cardiac recovery.

Conclusions: VAD removal in patients with chronic is feasible and can be successful even after incomplete cardiac recovery. Parameters of pre-explantation cardiac function, LV size and geometry, their stability during final “off-pump” trials and HF duration allow detection of patients with the potential to remain stable for > 5 post-weaning years.