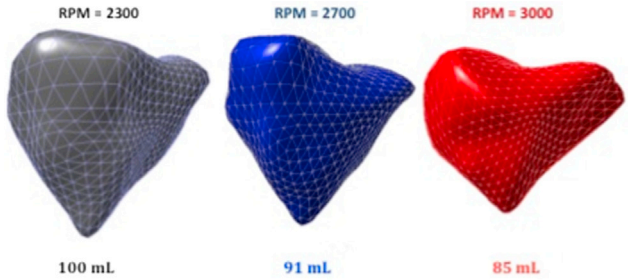
patients exhibited a U-shaped pattern with subsequent increases in RVV at higher speeds. The change in mean RVV had a strong correlation with the change in RAP (R = 0.76; p=0.05). No correlation was found between the change in septal or free wall curvature and RAP.
Conclusion: Ramp studies are associated with pressure unloading of the RV, mediated by a decrease in left-sided filling pressures. Afterload reduction appears to be a more important determinant of RV hemodynamics than alterations in septal position and RV geometry. Changes in RAP are correlated with changes in RVV, and 3DE is a noninvasive method of monitoring RV unloading during CF-LVAD speed adjustment.



3-dimensional surface analysis of the right ventricle during 3D echo ramp test

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Comparison of Hospitalization Rates With the HeartWare HVAD and HeartMate II Left Ventricular Assist Devices

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Purpose: There is growing interest in comparing the short and long-term complications associated with the FDA approved axial and centrifugal flow left ventricular assist devices (LVADs). We sought to compare hospitalization rates between the two devices.
Methods: Single center retrospective cohort study comparing overall and cause-specific hospital readmissions of patients implanted with the HVAD vs. HeartMate II (HMII) LVAD.
Results: Between Jan 2011 and Oct 2014, a total of 104 HVADs and 66 HMIIs were implanted. 28 patients (19 HVAD/10 HMII) died or were transplanted during the index hospitalization. HVAD and HMII patients were followed for a mean of 0.89±0.7 and 1.1±0.9 years, respectively. The 2 groups did not differ in the 30-day readmission (32% in HVAD vs. 28% in HMII) or in the overall rate of re-hospitalization (2.46 eppy in HVAD vs. 2.17 eppy in HMII, P=0.55) There were important differences in the rates of cause-specific re-hospitalization (Table 2): patients with HVAD had a significantly higher rate of hospitalization than patients with HMII for VAD related infections (HR 2.90 (95% CI 1.03-8.13), P=0.04), In contrast, patients with HVAD had a significantly lower rate of hospitalization than patients with HMII for pump thromboses (HR 0.22, 95% CI (0.07-0.69), P<0.01).
Conclusion: Overall rates of rehospitalization did not differ between the 2 pumps. However, patients with HMII had significantly more rehospitalizations for pump thromboses/hemolysis, whereas patients with HVAD had significantly more rehospitalizations for VAD related infections. The cause of these differences should be explored in future studies.

Table 1: Baseline Characteristics of Patients Discharged Following Implant

	HVAD (n=86)	HMII (n=55)	P-Value
Age, mean (sd)	54.7 (14.6)	54.5 (11.9)	0.93
Female, %	25.6	27.3	0.82
African American, %	59.3	65.5	0.71
BMI, mean (sd)	27.6 (5.6)	29.4 (6.3)	0.08
Ischemic CM, %	31.4	40.0	0.30
Diabetes mellitus	33.7	43.6	0.24
Albumin (mg/dl), mean (sd)	3.3 (0.6)	3.1 (0.5)	0.06
Destination Therapy, %	23.3	56.4	<0.01
INTERMACS Class	58.2	50.0	0.34

Table 1: Rates of Cause-Specific Rehospitalizations by Type of LVAD

	HVADEPPY (95% CI)N=86	HMIIEPPY (95% CI)N=55	P-Value
Bleeding	0.42 (0.30-0.57)	0.34(0.23-0.49)	0.69
Heart Failure	0.36 (0.26-0.51)	0.24(0.15-0.37)	0.35
Other CV Causes	0.32 (0.22-0.46)	0.23 (0.14-0.36)	0.50
Infection (VAD)	0.26 (0.17-0.38)	0.09 (0.04-0.18)	0.04
Infection (Non-VAD)	0.22 (0.15-0.34)	0.36 (0.25-0.52)	0.09
Pump Thrombosis/Hemolysis	0.05 (0.02-0.13)	0.26 (0.17-0.40)	<0.01
Arrhythmia	0.22 (0.15-0.34)	0.18 (0.10-0.30)	0.74
Neurologic Events	0.17 (0.11-0.28)	0.13 (0.07-0.23)	0.49
GI Causes	0.08 (0.04-0.16)	0.04 (0.01-0.12)	0.40
Mech/Elect Complications	0.05 (0.02-0.13)	0.05 (0.02-0.13)	0.95
Other	0.30 (0.21-0.43)	0.28 (0.18-0.42)	0.14

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Right Ventricular Failure After Left Ventricular Assist Device Implantation: The Importance of Preoperative Hemodynamic Profile

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Purpose: Retrospective evaluation of the incidence, risk factors, and impact on outcome of right ventricular failure (RVF) after left ventricular assist device (LVAD) implantation.
Methods: Patients (pts) receiving a continuous-flow LVAD from January 2006 to June 2013 (n=75, 92% males, mean age 54±10, 54.6% on inotropes and 28% on IABP at operation) were evaluated. RVF was defined by the postoperative need for ≥1 of the followings: RV mechanical support (RVAD), prolonged inotropes (≥14 days), nitric oxide (NO) inhalation ≥48 hours. Preoperative data and postoperative outcomes were compared in pts experiencing or not RVF (RVF vs nRVF). Univariate and multivariate predictors for RVF were also analyzed.
Results: RVF occurred in 39 pts (52%), with 1 pt requiring RVAD, 28 prolonged inotropes, and 19 NO >48h. The following parameters were significantly different in RVF vs nRVF pts: right atrial pressure (RAP) 10±3 vs 7±2 mmHg, p<.0001; central venous pressure/pulmonary capillary wedge pressure ratio (CVP/PCWP) 0.41±0.1 vs 0.28±0.17, p<.001; heart rate (HR) 85±12 vs 75±21 bpm, p<.001; right ventricular stroke work index (RVSWI) 514±324 vs 644±366 mmHg/mL/m², p=.003; blood urea nitrogen (BUN) 31.8±17 vs 22.5±8.9 mg/dl, p=.005. No significant differences were found in preoperative echocardiographic parameters (e.g. tricuspid annular excursion, RV fractional area shortening) and need for inotropes and/or IABP. One-year survival was 68% vs 92%, p=.003; hospital mortality 23 vs 5.5%, p=.03; intensive care stay 20 vs 9.8 days, p<.001 in RVF vs nRVF pts respectively. RAP >9 mmHg (odds ratio [OR] 6.1; 95% confidence interval [CI] 1.4-26.2; p=.014), RVSWI <518 mmHg/mL/m² (OR 5.7; 95% CI 1.2-26; p=.024), a CVP/PCWP >0.39 (OR 7.9; 95% CI 1.9-32.3; p=.004) and HR>83 bpm (OR 7.3; 95% CI 1.7-30.6; p=.006) were independent predictors of RVF at multivariate analysis.
Conclusion: In LVAD recipients, hemodynamic and clinical parameters directly or indirectly associated with increased RV filling pressure, rather than the entity or type (pharmacological and/or mechanical) of therapeutic support in place at the time of operation, appear to predict RVF, which has a negative impact on short and mid-term outcomes. The usefulness of a preoperative systematic and aggressive strategy targeted to optimize these parameters should be prospectively evaluated.

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Full Percutaneaous Temporary Right Ventricular Support By a Centrifugal Pump in Right Ventricular Failure After Left Ventricular Assist Device Implantation

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Purpose: Management of right ventricular (RV) failure after left ventricular assist device (LVAD) implantation is complex and not standardized.