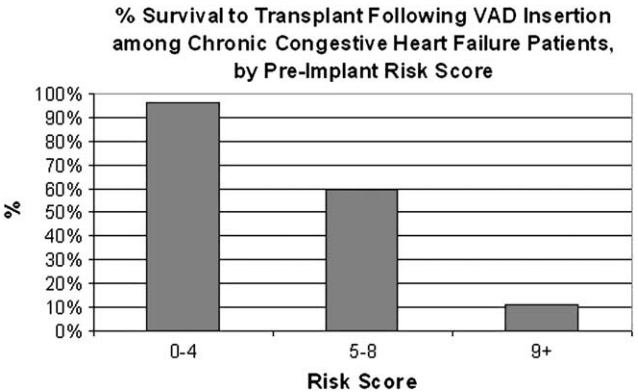


302

Preoperative Screening Scale Predicts Successful Bridge to Transplantation among Chronic Congestive Heart Failure Patients

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Objective: To devise a preoperative risk score to predict successful bridge to transplant (BTT) following left ventricular assist device (LVAD) implantation among patients with chronic congestive heart failure (CCHF). **Methods:** Analysis included 132 CCHF patients (diagnosis ≥ 6 months) who underwent LVAD implant as a BTT at a single institution. The primary outcome measure was survival to transplantation; other measures included 1-year survival. Univariate and multivariable analyses were performed to determine the predictors of survival to transplant after LVAD insertion. Threshold analysis using receiver operating (ROCs) curves and stratum-specific likelihood ratios were used to determine cut points on continuous variables. Using the relative risks for each identified variable, a risk factor summation score was devised. In order to assess the predictive power of the model, ROCs curve were constructed to determine the area under the curve (AUC). **Results:** Patients risk was determined by assigning points based on the following scoring scheme: albumin < 2.9 (1), hemato-crit < 27 (1), central venous pressure > 16 (1), age ≥ 56 years old (1), CrCl < 55.2 (2), female sex (2), previous cardiac surgery (2), PT > 16 (2), and BMI ≤ 20.4 (3) Survival to transplant by risk score is as follows: 0–4 96.2% (n = 79); 5–8 59.1% (n = 44); ≥ 9 11.1% (n = 9); the AUC was 0.87 (0.81–0.94). Likewise, this risk score is highly predictive of longer term survival with 1-year survival following LVAD implant by risk score as follows: 0–4 86.0% (n = 57); 5–8 46.0% (n = 37); ≥ 9 11.1% (n = 9); the AUC was 0.80 (0.71–0.88) **CONCLUSIONS:** Pre-VAD implant patient characteristics are highly associated with survival to transplant as well as longer term survival. Because CCHF patients may undergo non-emergent VAD implant, this risk score could assist in patient selection, timing of implant, and pre-implant optimization of patients.



303

Diabetes Reduces the Likelihood of More Favorable Outcomes in Women Than Men with Heart Failure: Retrospective Analysis of the DIG Trial

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Background: Previous studies suggest women with heart failure (HF) may be at less risk of death or hospitalization than men with this syndrome. Whether this advantage is modified by diabetes mellitus (DM) has not been well investigated. **Methods:** We studied the influence of a history of DM on the relative risk for adverse outcomes (death, the risk of hospitalization for worsening HF, and all-cause hospitalization) in men versus women with HF using data from the Digitalis Investigation Group trial (n = 7788). The analysis included patients with reduced left ventricular systolic function (LVD) (defined as LVEF $\leq 45\%$) and preserved left ventricular systolic function (PEF) (defined as LVEF $> 45\%$). Multivariable proportional hazards analysis determined if DM modified the relative risk of men versus women (overall and in LVD or PEF groups) for adverse outcomes. **Results:** Among patients with LVD (n = 6800), women had better survival than men in DM (1.22, 95% confidence interval (CI) 1.04–1.44, p = 0.015) and non DM groups (1.66, 95% CI 1.45–1.91, p < 0.001), but the advantage was significantly less in DM (p = 0.004 for interaction). In the subgroup with PEF (n = 988), women did not have better survival than men in the DM group (1.42, 95% CI 0.90–2.25, p = 0.136) but did in the non DM group (1.72, 95% CI 1.20–2.46, p = 0.003, p = 0.505 for interaction). The influence of DM on the relative risk of men versus women for study end points in all patients,

including tests of interaction with gender, is shown in the table below. **Conclusion:** Women with HF were at less risk for adverse events than men, but the apparent protective effect of female gender was significantly reduced by the presence of DM.

All Patients (n = 7788)	Death		All-Cause Hospitalization		HF Hospitalization	
	HR (95% CI)	P	HR (95% CI)	P	HR (95% CI)	P
Men vs. Women						
DM	1.23 (1.06–1.43)	0.008	1.03 (0.92–1.15)	0.598	1.00 (0.86–1.16)	0.982
Non DM	1.64 (1.44–1.86)	<0.001	1.28 (1.17–1.39)	<0.001	1.28 (1.13–1.46)	<0.001
Interaction P Value		0.003		0.002		0.011

304

B-Type Natriuretic Peptide Levels Measured 12 Hours after Cardiac Surgery Correlate Best with Mortality

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Introduction/Hypothesis: Prior small studies have demonstrated that preoperative B-type natriuretic peptide (BNP) levels are correlated with outcomes. Since the peri-operative state after cardiac surgery is associated with marked changes in cardiocirculatory homeostasis, we postulated that postoperative BNP levels may be better correlated with outcomes compared to preoperative levels. **Methods:** We analyzed clinical data of 192 male patients who underwent cardiac surgery at VA Boston Healthcare during the time period 2004–2005. Log-transformed BNP levels (preoperative, 3, 6, 12 hours and days 1–5 postoperative) were correlated with length of stay (LOS), intensive care unit (ICU) LOS, 6-month mortality, and 6-month hospital admission rate using Pearson's correlation. Multiple linear and logistic regression analyses were utilized to correct for the following confounding factors: age, body mass index, creatinine, and left ventricular ejection fraction (LVEF). **Results:** Mean age of the patient group was 66 \pm 9.1 years; mean preoperative LVEF was 47 \pm 13 %. Preoperative BNP levels were independent predictors of total LOS and ICU LOS, while 12 hour postoperative BNP levels were independent predictors of ICU LOS and 6-month mortality (Table 1). Neither measurement was correlated with the 6-month admission rate. **Conclusions:** BNP levels measured at the 12-hour postoperative time point had the greatest correlation with postoperative outcomes compared to preoperative BNP levels. This may reflect the fact that 12 hours gives adequate time for return to cardiocirculatory homeostasis and that elevation of BNP levels at that time may indicate significant cardiovascular perturbation. Our results indicate that a single measurement of BNP level at the 12-hour postoperative time point may allow appropriate risk stratification of the cardiac surgical patient, and guide resource allocation to improve outcomes.

Table 1. Correlations of BNP Levels With Outcomes

	PreOp BNP		12 Hour PostOp BNP	
	Pearsons R	P value (multivariate analysis)	Pearsons R	P value (multivariate analysis)
Total LOS	0.34	0.024*	0.19	NS*
ICU LOS	0.36	0.003*	0.33	<.001*
6 month mortality	0.09	NS**	0.27	0.007**
6 month admissions	0.04	NS**	0.15	NS*

*multiple linear regression,
**multiple logistic regression.

305

Nesiritide for Decompensated Heart Failure Is Associated with Increased Risk of Renal Failure: A Meta-Analysis of Randomized Controlled Trials

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Background: Nesiritide (recombinant B-type natriuretic peptide, BNP) is approved for the treatment of acute decompensated heart failure (ADHF). There has been a concern of increase in serum creatinine with nesiritide use. We performed a meta-analysis to evaluate the risk of renal failure (RF) in patients treated with nesiritide for ADHF. **Methods:** Five large randomized controlled trials on nesiritide with available data on serum creatinine were included for analysis. The nesiritide dose used in the selected trials was 0.01–0.03 mcg/kg/min. Data on incidence of RF (defined as increase in serum creatinine > 0.5 mg/dl at any time through 30 days) in the nesiritide and control arms were extracted from the selected trials and from the nesiritide