



ACC.14

TCT@ACC-12 | innovation in intervention

A899

JACC April 1, 2014

Volume 63, Issue 12



## Heart Failure and Cardiomyopathies

### THE RED CELL DISTRIBUTION WIDTH AND THE CBC RISK SCORE MEASURED PRIOR TO LEFT VENTRICULAR ASSIST DEVICE IMPLANTATION PREDICT POST-IMPLANT SURVIVAL

Poster Contributions

Hall C

Sunday, March 30, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Approaches to Advanced Heart Failure: From VAD, Transplant, Palliative Care to New Percutaneous Therapies

Abstract Category: 12. Heart Failure and Cardiomyopathies: Clinical

Presentation Number: 1221-186

Authors: *Santhosh R. Mannem, Benjamin Horne, Omar Saeed, bdallah Kfoury, Sampath Gunda, Jason Salamon, Deborah Budge, Manoj Bhandari, Rami Iharethi, Muhammad Iqbal, Jeremy Mazurek, Bruce B. Reid, Daniel Goldstein, Ronald Zolty, Ibert Einstein College of Medicine-Montefiore Medical Center, Bronx, NY, USA, Intermountain Medical Center, UT, USA*

**Background:** The red cell distribution width (RDW) predicts mortality in many cardiovascular (CV) diseases. The sex-specific complete blood count (CBC) risk score uses the RDW and other CBC components to predict mortality. Very few risk models are known for predicting survival in patients undergoing left ventricular assist device (LVAD) implantation. We studied if pre-LVAD RDW or CBC score predict post-implant mortality.

**Methods:** Adult LVAD patients from Montefiore Medical Center [NY] (N=122, 2006-2013) and Intermountain Medical Center [UT] (N=78, 2004-2013) were studied if a CBC was measured up to 7 days before implantation. Females were excluded due to small sample size. Continuous values were the primary metric in adjusted Cox regression meta-analyses.

**Results:** At Montefiore and Intermountain, age averaged  $56.6 \pm 12$  and  $57.5 \pm 15$  years, respectively ( $p=0.65$ ), while RDW was  $16.9 \pm 2.9\%$  and  $17.2 \pm 3.2\%$  ( $p=0.42$ ), and CBC score  $8.9 \pm 2.3$  and  $9.1 \pm 2.1$  ( $p=0.67$ ), revealing similar LVAD patient sets. Survival meta-analyses revealed RDW and CBC score associations with mortality (Table). Higher platelet count was associated with lower mortality and higher MPV with higher risk.

**Conclusion:** Pre-implantation RDW and the CBC score independently predicted mortality in LVAD recipients. The CBC (which includes the RDW) is a simple, readily available tool which may aid in LVAD patient prognostication. As in other CV conditions, the RDW-associated mechanism is poorly understood and requires further study.

Adjusted meta-analysis results from Cox regression. All models adjusted for study site and basic metabolic profile components (RDW models also adjusted for age and other CBC components). Quartiles of RDW were: Q1 $\leq$ 15.1%, Q2=15.2-16.1%, Q3=16.2-18.3%, Q4 $\geq$ 18.4%; and CBC score quartiles were: Q1 $\leq$ 7, Q2=8-9, Q3=10, Q4 $\geq$ 11

Predictor	Hazard Ratio (95% CI)	p-value
RDW, continuous values	1.09 per +1% (1.01, 1.18)	0.042
RDW, trend across quartiles	1.31 per quartile (1.02, 1.70)	0.038
RDW, quartile 4 vs. quartile 1	1.70 (0.77, 3.77)	0.19
CBC Risk Score, continuous	1.14 per +1 score (1.00, 1.29)	0.045
CBC Score, trend across quartiles	1.27 per quartile (0.99, 1.62)	0.06
CBC Score, Q4 vs. Q1	2.55 (1.01, 6.47)	0.048