ISHLT ACUTE HF AND HEART TRANSPLANTATION. Jul '21
JOURNAL WATCH

KATIA BRAVO-JAIMES, MD
University of California, Los Angeles, USA

Paola Morejon B, MD
EDITOR
ISHLT.ORG

Hernandez-Montfort, J et al. **Clinical Outcomes Associated With Acute Mechanical Circulatory Support Utilization in Heart Failure Related Cardiogenic Shock.**
Circ Heart Fail. 2021;14:e007924.

STUDY HIGHLIGHTS

What are the clinical, hemodynamic, metabolic, and treatment parameters associated with clinical outcomes among patients with HF-CS?

Multicenter Cardiogenic Shock Working Group registry. Three outcome categories: mortality, heart replacement therapy (HRT) or native heart survival (NHS).

712 patients

Mortality (25%)

Older
HTN, DM, CKD, PAD
BiV & left congestion
Cr, INR, Bili
Mech ventilation
>1 drug therapy
>1 device therapy
5% No MCS
34% IABP
23% Impella
13% ECMO

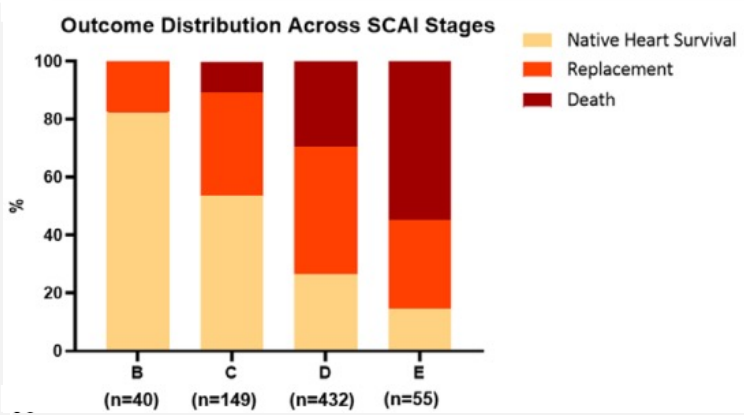
HRT (39%)

14% No MCS
64% IABP
6% Impella
5% ECMO

NHS (36%)

Valvular heart disease
Prior PCI
Vent arrhythmias & ICD
44% No MCS
34% IABP
12% Impella
4% ECMO

CENTRAL FIGURE



FACT

SCAI Stages are associated with outcomes in this HF-CS cohort

REVIEWER'S COMMENTS

- Sicker patients do worse
- Higher proportion VHD in NHS: supports routine participation & early intervention by structural heart team
- IABP: is it time to reconsider its role?

ISHLT JOURNAL WATCH
ACUTE HF AND HEART TRANSPLANTATION. Jul '21

CARLOS ORTIZ-BAUTISTA, MD
Hospital Universitario Gregorio Marañón, Madrid, España

Paola Morejon B, MD
EDITOR
ISHLT.ORG

Horiuchi YU, et al. Potential Utility of Cardiorenal Biomarkers for Prediction and Prognostication of Worsening Renal Function in Acute Heart Failure.

J Card Fail. 2021 May;27(5):533-541.

STUDY HIGHLIGHTS

Do biomarkers reflective of systemic pathophysiologic processes in *AHF predict and discriminate **WRF?

Retrospective analysis of **787** patients admitted for AHF (AKINESIS study)

Serial measurements of sCr, BNP, hscTnI, Gal3, sNGAL and uNGAL

Biomarkers and WRF

Admission hscTnI and sNGAL ↑ risk of

OR 1.12 OR 1.36

Poor discrimination ability (AUC 0.55-0.62)

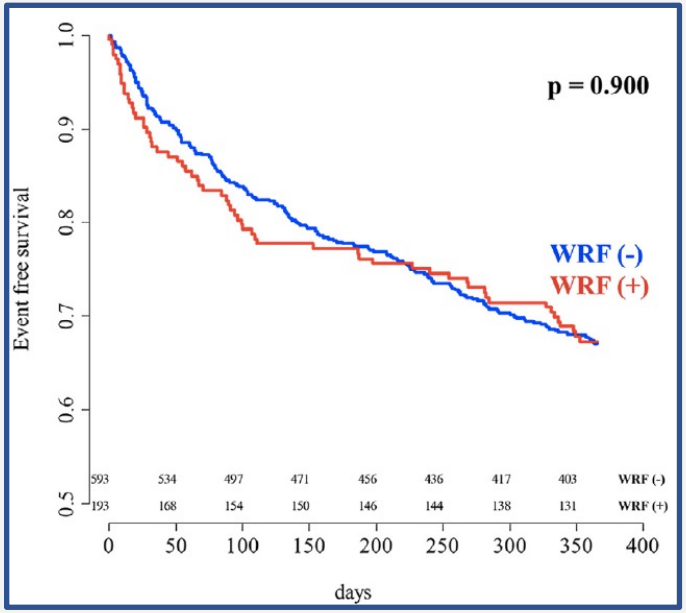
Outcomes

WRF did not predict composite endpoint (death or HF admission at 1-year)

WRF and increasing uNGAL ↑ risk of

*AHF: acute heart failure * WRF: worsening renal function

CENTRAL FIGURE



Event free survival for the composite endpoint of death or HF admission at 1-year

REVIEWER'S COMMENTS

Among AHF patients, pathophysiologic mechanisms driving WRF determine the clinical significance.

Further investigation in the pathophysiology of WRF is needed to identify patients with high risk of poor outcomes.

ISHLT ACUTE HF AND HEART TRANSPLANTATION. Jul '21
JOURNAL WATCH

CAITLIN CHESHIRE, MD
The Alfred Hospital, Melbourne, Australia

Anna Kydd, MD
EDITOR
ISHLT.ORG

Macdonald P S et al. **The impact of frailty on mortality after heart transplantation**

J Heart Lung Transplant, 2021 Feb;40(2):87-94.

STUDY HIGHLIGHTS

Objective: To assess the impact of pre-transplant frailty on mortality and the duration of hospitalization after heart transplantation (HTx).

Methods: Single centre, retrospective cohort study of 140 patients with advanced heart failure who had undergone frailty assessment within the 6-month interval before HTx.

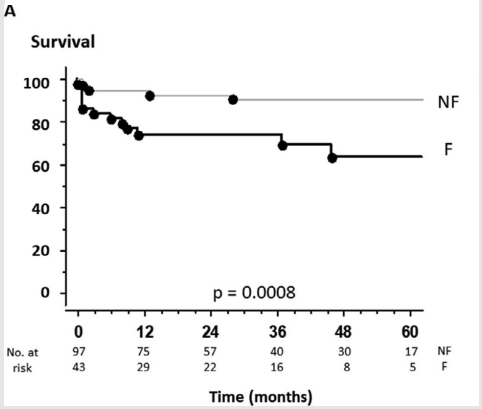
- Frail (F) = 43 patients
- Non Frail (NF) = 97 patients

Results:

- **Post-transplant survival was significantly lower in the F cohort than in the NF cohort (p = 0.0008)**
- F cohort had longer median length of stay in ICU (p <0.05) and hospital (p <0.05).
- **Frailty** (HR 3.8, 95% CI: 1.4− 10.5, p=0.01) and **severe primary graft dysfunction** (HR 3.2, 95% CI: 1.2− 8.1, p=0.016) were the **only 2 independent predictors of reduced survival after HTx** in Cox proportional hazards regression analysis.

CENTRAL FIGURES

Figure 2: Post-transplant survival curves stratified by pre-transplant frailty status



Frailty assessment tool used- Modified version of Fried Frailty Phenotype (FFP): fatigue, grip strength, gait speed (over 5 metres), loss of appetite, physical activity + cognitive impairment assessed using the Montreal Cognitive Assessment (MOCA) tool.

REVIEWERS COMMENTS

- Although a retrospective analysis - frailty was assessed prospectively.
- **30% of cohort were identified as frail prior to transplantation.**
- VAD patients who remained frail at time of transplant had significantly reduced survival (50% 12 month survival).

LIMITATIONS

- Large proportion of transplanted cohort (48%) during study period excluded due to either absence of frailty data or frailty assessment undertaken >6 months prior to transplantation.
- Single centre retrospective study.
- Small cohort size.

QUESTIONS RAISED

- Further research needs to examine methods for improving frailty pre-transplantation.
- Is there a role for pre-habilitation?

ISHLT JOURNAL WATCH
ACUTE HF AND HEART TRANSPLANTATION. Jul '21

ANDREW MORLEY-SMITH
Queen Elizabeth Hospital, Birmingham, UK

Anna Kydd, MD
EDITOR
ISHLT.ORG

Gonzales MH et al. **Dynamic Assessment of Pulmonary Artery Pulsatility Index Provides Incremental Risk Assessment for Early Right Ventricular Failure After Left Ventricular Assist Device.** J Card Fail. 2021 Feb 25

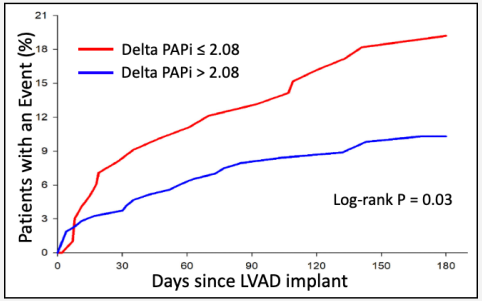
STUDY HIGHLIGHTS

Objective: Does serial measurement of PAPi ($\frac{PASP - PADP}{RAP}$) during HD optimization before LVAD offer incremental risk stratification for early RV failure after LVAD?

Method: Single center, retrospective study of 315 consecutive patients who were judged "high risk" based on clinical need for PAC-guided optimization. Optimization included inotropes, vasopressors and stMCS (mainly IABP). Baseline and optimized HD were recorded. The primary endpoint of early RV failure was based on components of INTERMACS definition.

Results: Optimal PAPi was reached after an average of 5 days. Early RVF occurred in 22% (most due to prolonged inotropes). **RVF occurred less frequently in patients whose PAPi could be increased by >2 to an absolute level of >3.3.** Optimal PAPi offered incremental benefit to predict early RVF when combined with clinical, echo, and standard HD parameters.

Primary outcome	Total (n=315)	Optimal PAPi		P-value
		>3.33 (n=236)	≤3.33 (n=79)	
Early RVF, n (%)	70 (22.2%)	26 (11%)	44 (56%)	<.001



Hemodynamics		Early RV Failure No (n=245)	Early RV Failure Yes (n=70)	P Value
Initial	RAP	**17.4 ± 5.9**	**15.0 ± 5.8**	.37
	PASP	56.4 ± 16.1	51.5 ± 11.9	0.002
	PA pulse pressure	**26.2**	**22.3**	
	PCWP	28.4 ± 8.2	26.9 ± 6.6	.13
Optimized	RAP	**5.3 ± 3.39**	**9.1 ± 5.18**	<.001
	PASP	47.6 ± 13.47	46.4 ± 11.21	.533
	PA pulse pressure	**27.5**	**24.1**	
	PCWP	17.4 ± 5.48	19.6 ± 6.88	.073
PAPi	Initial PAPi	2.0 ± 1.14	1.4 ± 0.77	<.001
	Optimized PAPi	7.5 ± 5.46	3.5 ± 2.31	<.001
	Delta PAPi	5.5 ± 5.20	2.1 ± 2.09	<.001

Adapted from Table 3 and Supplemental Table 1

REVIEWER'S COMMENTS

- Serial assessment during optimization of high risk LVAD candidates, using validated hemodynamic targets to guide management, might lead to reduced incidence of early RVF or improved longer term survival.

Effective decongestion remains key

- The majority of the increase in PAPi was achieved by big reductions in right sided filling pressures, rather than changes in pulmonary pressures (see table).
- There was less effective decongestion in patients subsequently developing early RVF.
- **Questions Raised**: Is there a role for a prospective trial with patients identified as high risk for RVF by optimal/delta PAPi thresholds randomized to planned short term RVAD vs standard care.