Reassessing the Urgency of LVAD Patients Awaiting Transplantation

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RESOLVING THE ORGAN SHORTAGE

PRACTICE | POLICY | POLITICS

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Conflict of Interest Disclosure

- Consultant / National PI St. Jude (No honoraria)
- Consultant Heartware

Transplant Registrants With Implanted Left Ventricular Assist Devices Have Insufficient Risk to Justify Elective Organ Procurement and Transplantation Network Status 1A Time

Todd Dardas, MD, MS,* Nahush A. Mokadam, MD,† Francis Pagani, MD, PHD,‡
Keith Aaronson, MD, MS,§ Wayne C. Levy, MD*

(J Am Coll Cardiol 2012;60:36–43)

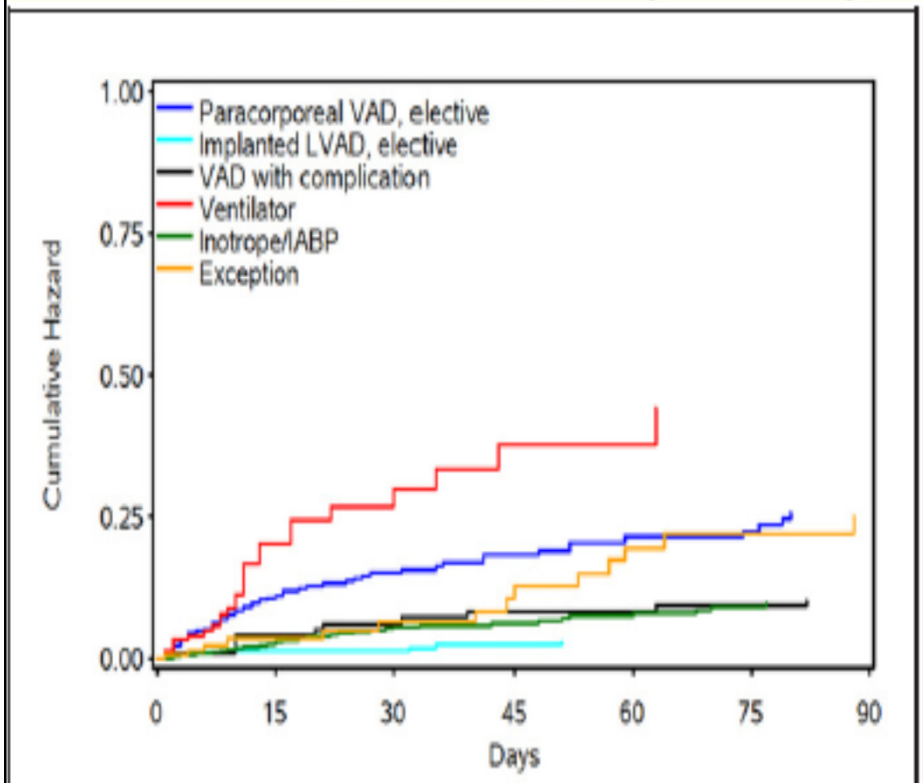


Figure 1 Cumulative Event Rate for Status 1A In-Status Model

- SRTR Database analyzed 2005-2010

Conclusion:

30 day 'Bonus Time" for LVAD implant unjustified.

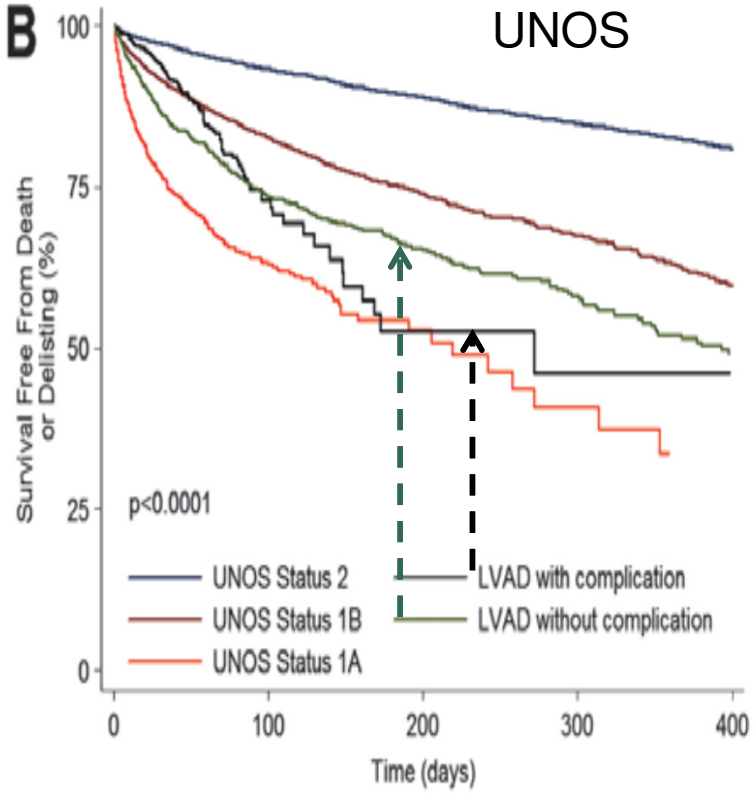
Morbidity and Mortality in Heart Transplant Candidates Supported With Mechanical Circulatory Support

Is Reappraisal of the Current United Network for Organ Sharing Thoracic Organ Allocation Policy Justified?

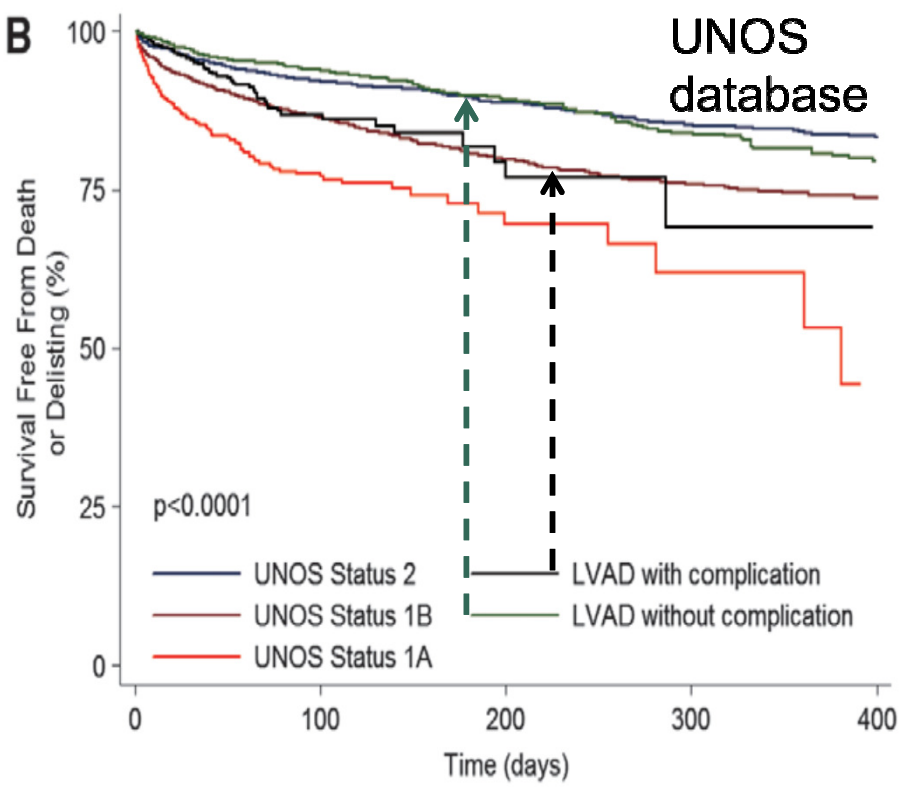
Omar Wever-Pinzon, MD; Stavros G. Drakos, MD, PhD; Abdallah G. Kfoury, MD; Jose N. Nativi, MD; Edward M. Gilbert, MD; Melanie Everitt, MD; Rami Alharethi, MD; Kim Brunisholz, MST; Feras M. Bader, MD, MS; Dean Y. Li, MD, PhD; Craig H. Selzman, MD; Josef Stehlik, MD, MPH

Circulation. 2013;127:452-462.

1999-2008 UNOS

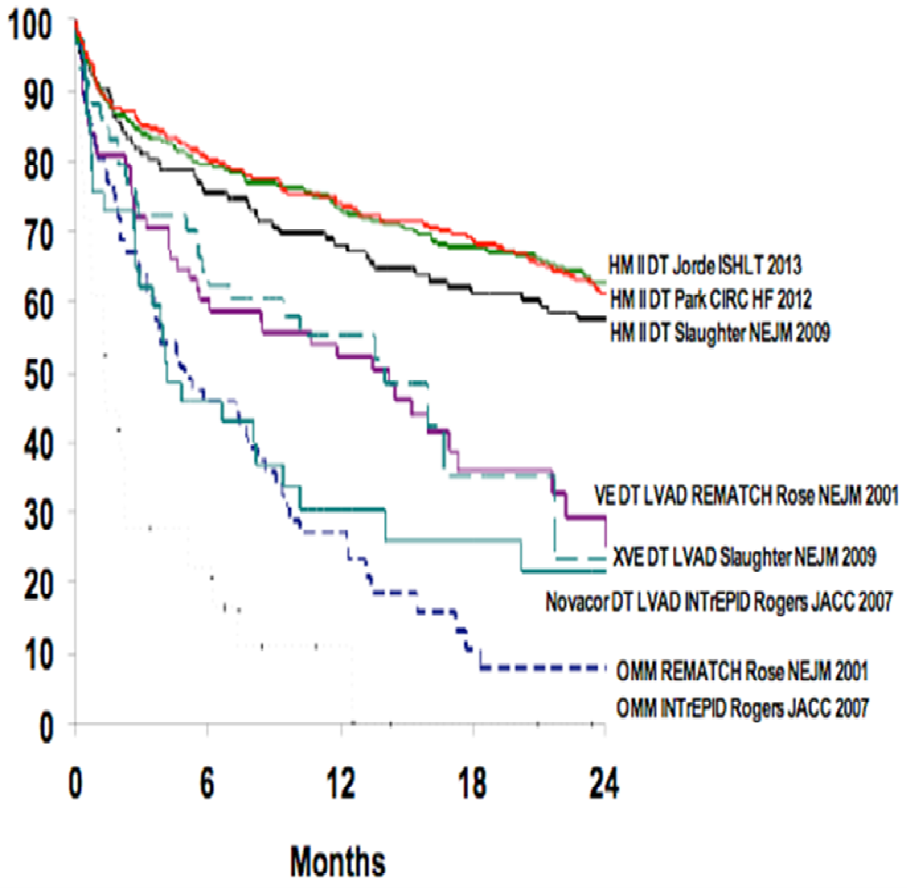


2008-2011 UNOS database



1A Exceptions – Still Justified ?

- AI
- Hemolysis
- Device Thrombosis
- Bleeding
- Ventricular Arrhythmia
- Device malfunction



Jorde et al JACC 2014

Aortic Insufficiency

- > Moderate AI
- MAP < 70 mmHg
- PCWP > 20 mmHg
- NYHA ¾
- Normal Device function

AI – Need For Failed Ramp Criterion ?

Table 4. Acute Hemodynamics Study for Case 3

Speed, rpm	AI	CVP, mm Hg	PAP, mm Hg	Mean PAP, mm Hg	PCWP, mm Hg	MVO2, %	LVEDD, cm	PI	CO, L/min	CI, L/min per Square Meter
8000	Moderate to severe	...	55/20	32	22	41	6.4	7	3.08	1.57
9000	Moderate to severe	...	50/19	29	20	48	6.2	7	3.5	1.79
10000	Moderate to severe	4	53/18	30	18	49	6.3	7	3.57	1.82
11000	Severe	...	51/19	30	16	52	6.3	7	3.79	1.93
12000	Severe	...	47/18	28	15	54	6	7.1	3.96	2.02
13000	Severe	...	44/17	26	13	58	6	5.5	4.33	2.21
14000	Severe	5	47/15	26	12	60	5.8	4.1	4.55	2.32

AI indicates aortic insufficiency; CI, cardiac index; CO, cardiac output; CVP, central venous pressure; LVEDD, left ventricular end diastolic diameter; MVO2, mixed venous oxygen saturation; PAP, pulmonary artery pressure; PCWP, pulmonary capillary wedge pressure; and PI, pulsatility index.

Bleeding

- 2 hospitalization for bleeding
- Source not treatable endoscopically
- 2 U PRBC each hospitalization
- INR < 3 at time of bleed
- HCT < 20 or 20% reduction

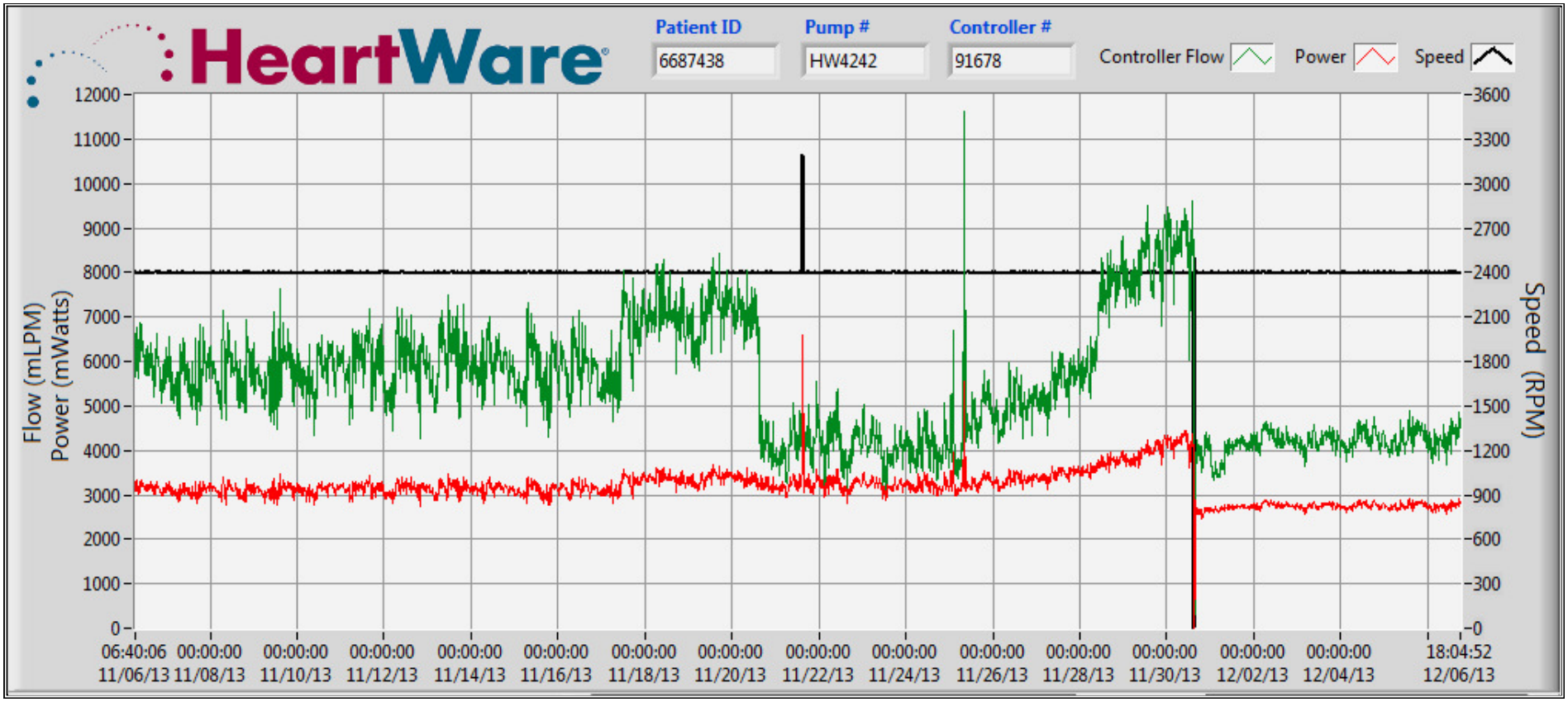
Ventricular Tachycardia

- Recurrent or sustained VT/VF
- Need for BIVAD *or*
- 3 episodes over 14 days
  - electrical cardioversion
  - ablation not an option

Hemolysis

- LDH 2.5xnl / pfHgb> 20 / Hemoglobinuria (2 out of 3)
- At least one treatment attempt without resolution
- No pump dysfunction

LDH normal – 1A ?



Pump Thrombosis

- Visually detected thrombus
- Hemolysis with abnl pump performance
- TE plus
  - intracardiac thrombus excluded / no severe carotid dz
  - permanent neuro deficit & new defect on imaging study

RV Failure

- ≥ moderate RV dysfunction
- RVAD *or*

- CVP > 18
- 14 days inotrop / NO / prostacyclin

Infection

- Site erythema plus leukocytosis (or 50% increase) plus pos site Cx
- Surgical debridement with positive Cx
- Positive pocket Cx
- Bacteremia recurrent after Abx

Device Malfunction

Device malfunction (potentially fatal malfunction of components of the MCSD system)

Summary

- Thirty Day “bonus” should be removed entirely
- Current Device Complication Upgrade Criteria Are Still Justified

- Downgrade suppressed Driveline infection ?
- Ramp Criterion for AI ?
- Device Thrombosis: 30 day 1A after exchange ?