**Hypothesis:** Transpulmonary gradient (TPG) prior to LVAD = better predictor of survival post heart transplant (HT) than pre-op pulmonary vascular resistance (PVR)

**Design:** Prospective multicenter

**Inclusion:** 36 centers, 490 HM2 LVAD patients 3/05 – 4/08

**Outcomes:** 30-day and 1-year HT survival.

**Results:** 249 pts had HT after median of 172 days on LVAD.

<table>
<thead>
<tr>
<th>STUDY HIGHLIGHTS</th>
<th>CENTRAL FIGURE</th>
<th>REVIEWER’S COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No difference at 30days</strong></td>
<td>TPG &gt; 10 = ↓ survival at 1yr</td>
<td>TPG = novel prognosticator for post-HT survival</td>
</tr>
<tr>
<td>No difference in 1-yr survival in pts with low or high pre-op PVR</td>
<td></td>
<td>Limitations: -HM2 patients only (though other LVADs may confer same outcomes). -Post hoc analysis -Lack of TPG or PVR measurements after LVAD and immediately prior to HT. -Short duration of LVAD support prior to HT raises question of persistent PH post-LVAD.</td>
</tr>
</tbody>
</table>
McCullough et al. Neurohormonal Blockade and Clinical Outcomes in Patients With Heart Failure Supported by Left Ventricular Assist Devices. *JAMA Cardiology*

**STUDY HIGHLIGHTS**

**Question:** Does neurohormonal blockade (NHB) improve outcomes for LVAD patients?

**Inclusion:** 12,144 pts with CF-LVAD for 6 months in INTERMACS (1,725 not on NHB).

**Stats:** KM curve with NHB=time-dependent covariate, propensity matching

<table>
<thead>
<tr>
<th>Therapy</th>
<th>HR (95% CI)</th>
<th>Favors Treatment With NHB</th>
<th>Favors Treatment Without NHB</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not receiving NHB</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BB MRA ACEI/ARB</td>
<td>0.34 (0.28-0.41)</td>
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<td></td>
</tr>
<tr>
<td>ACEI/ARB MRA</td>
<td>0.50 (0.37-0.67)</td>
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<td>&lt;.001</td>
</tr>
<tr>
<td>BB ACEI/ARB</td>
<td>0.44 (0.37-0.51)</td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>ACEI/ARB</td>
<td>0.41 (0.32-0.51)</td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>BB</td>
<td>0.65 (0.56-0.74)</td>
<td></td>
<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>BB MRA</td>
<td>0.57 (0.48-0.69)</td>
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<td></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>MRA</td>
<td>0.88 (0.70-1.10)</td>
<td></td>
<td></td>
<td>.3</td>
</tr>
</tbody>
</table>

**Results:** NHB wins!

- Propensity score-match analysis: any NHB use > none (4y survival 59% vs. 46%); **triple drugs >> none** (69% vs. 54%).
- Median KCCQ score: NHB use > none (67 vs. 63, p=0.02)
- 6MWT: NHB use > none (1103 ft vs. 987 ft, p<.001)
- New NHB users after 6 months: NHB associated with ↑survival (HR 0.66, CI 0.56-0.78).

**CENTRAL FIGURE**

**REVIEWER’S COMMENTS**

- Excellent & important study of a large cohort, meticulous analyses to adjust for confounders.
- Provocative finding: NHB assoc. w/ ↑ explant chance for recovery.
- Use of NHB across North American centers = very heterogenous.

**Limitations:**
- Association ≠ causation
- Healthy user bias

**Question raised:** Need for RCT of NHB use vs. none in CF-LVAD pts.
Hypothesis: MCS use varies by UNOS regions & minority status

Inclusion: INTERMACS (≥20 yo) + Medicare claims, stratified across UNOS regions ‘08-‘14 (population census from CDC database).

Changes in rates (#MCS procedures/white or minority population per UNOS region) ‘08 → ‘14:
- White patients: ↑MCS, ↓OHT in regions 1, 3, 9, 10.
- Minority: ↑MCS, ↓OHT in regions 1, 2, 3, 6.

Marked heterogeneity in MCS use across UNOS regions

Provocative question: Why ↑MCS use in minority only in certain regions? (Disparity in OHT access? ↑co-morbidities? ↓Socio-economic status?)

Limitations:
- Ascertainment bias in INTERMACS → ↑MCS use
- No granularity within “minority” (Black vs. Hispanic vs. others)