Impact of Temporary Mechanical Support on Long-term Posttransplant Outcomes in the Current Era

Abstract #2736

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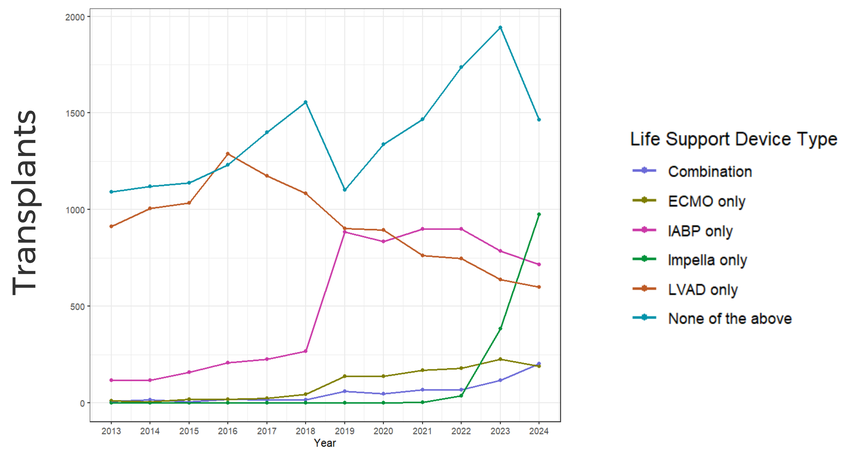
Introduction

The 2018 US heart allocation policy revision prioritized candidates with temporary mechanical circulatory support (tMCS); therefore, tMCS use increased after implementation. Whether this changed heart transplant outcomes compared to heart transplant from no support or durable left ventricular assist device (LVAD) is unknown.

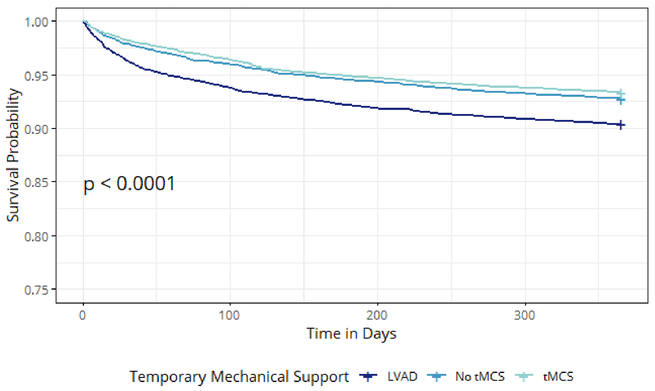


Methods

- Using the Scientific Registry of Transplant Recipients database, we identified 13,839 heart recipients who had transplant at status 1A or 1B or adult statuses 1-4 from January 1, 2019, through August 31, 2023
- MCS defined as tMCS (intra-aortic balloon pump [IABP], extracorporeal membrane oxygenation [ECMO], Impella) or durable LVAD (LVAD; dischargeable or nondischargeable)
- Exclusion: Retransplant, multiple MCS devices, patients lost to follow-up.
- Comparison: no tMCS (4,877 [35.2%]), durable LVAD (4,771 [34.5%]), tMCS (4,191 [30.3%])
- No significant differences in major demographic categories between groups
- 1-year posttransplant survival and incidence of acute rejection estimated by Kaplan-Meier method; pairwise comparisons were calculated between group levels by a log-rank test with Bonferroni-Holm adjustment
- 1-year hemodialysis rate compared by chi-square test for proportions with pairwise comparisons with correction for multiple testing

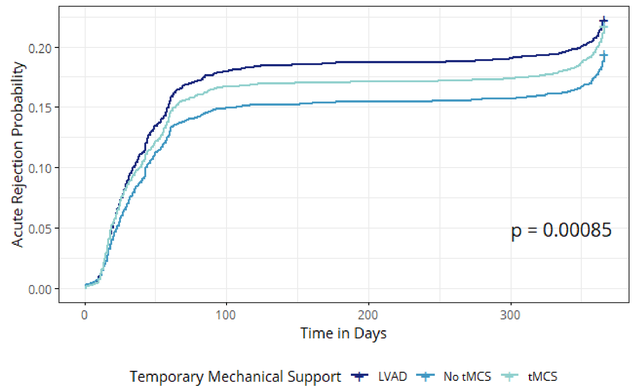
Results

1-year posttransplant survival



Device	p-value
tMCS vs. no tMCS	0.29
tMCS vs. LVAD	<0.0001
no tMCS vs. LVAD	<0.0001

1-year posttransplant incident acute rejection



Device	p-value
tMCS vs. no tMCS	0.006
tMCS vs. LVAD	0.48
no tMCS vs. LVAD	0.0003

Hemodialysis rate at 1 year

Device	# Survived	# on Dialysis	p-value for proportions
tMCS	3912	521	<0.0001
LVAD	4312	459	
No tMCS	4524	443	

Device	p-value for pairwise proportions
tMCS vs. no tMCS	<0.0001
tMCS vs. LVAD	0.00043
no tMCS vs. LVAD	0.19779

Conclusions

- Survival from tMCS was similar to no tMCS; survival was lowest from durable LVAD at 1 year
- Acute rejection was more common in tMCS and durable LVAD
- tMCS has highest rate of hemodialysis at 1 year
- Future directions: Compare survival and complications from tMCS pre-2018 and post-2018 policy change
  - Renal function
  - Need for blood transfusions
  - Treatment of infections

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