ISHLT PEDIATRICS. JAN '20
JOURNAL WATCH

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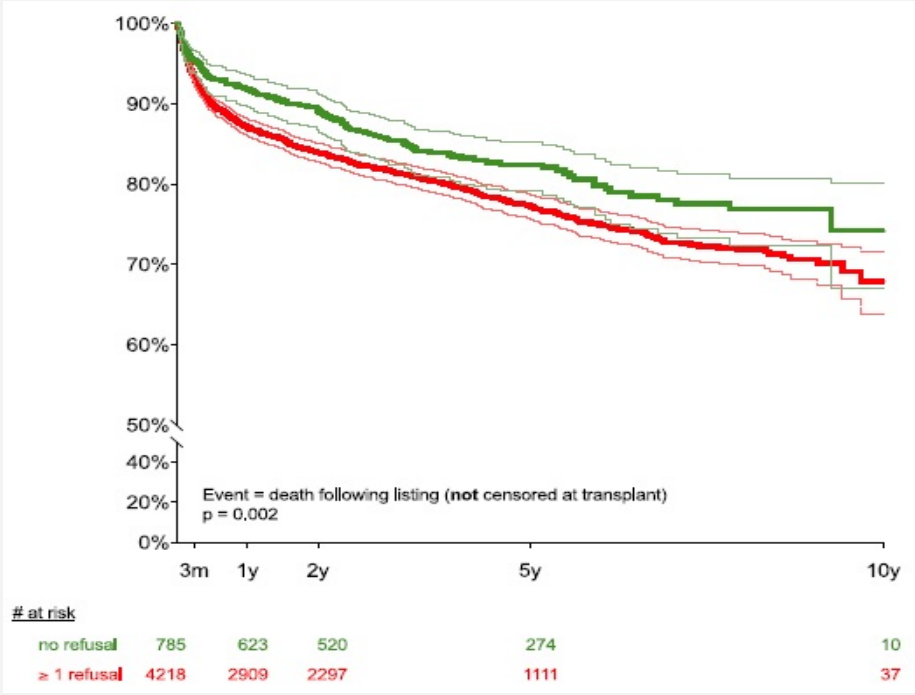
Donor Organ Turn-downs and Outcomes After Listing for Pediatric Heart Transplant.

Davies et al. The Journal of Heart and Lung Transplantation, March 2019

STUDY HIGHLIGHTS

- Mortality while awaiting heart transplant remains high, yet donor organs are frequently declined.
- Retrospective study of Organ Procurement and Transplantation Network database, analyzing 12,447 hearts offered at least once to a pediatric candidate.
- Refusing an organ which was later accepted for transplant by another patient was associated with increased wait list and post-transplant mortality for the refusing patient compared with patients who accepted their first offer:
  - Univariate – 1 year: 87% vs 92%, p = 0.002
  - Multivariate Cox regression – HR 1.5, 95% CI 1.2 - 1.7, p < 0.0001

CENTRAL FIGURE



Kaplan–Meier curve illustrating survival after listing among candidates receiving at least 1 acceptable donor offer (ADO). Candidates were stratified by whether the initial ADO was accepted or refused. Thin lines represent 95% confidence intervals.

ADO defined as whenever a patient received an offer for an organ that was ultimately accepted for transplantation, provided the donor was <1,000 miles away from the potential recipient and <40 years old

REVIEWER'S COMMENTS

Important study that highlights the crucial balance needed when evaluating an organ offer: sometimes accepting an organ that is "just good enough" is better than waiting for a "perfect heart".

LIMITATIONS:

- This is a retrospective study.
- Reasons for declining an organ were not taken into account.
- Several other definitions of acceptable donor offer are also possible.

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Cardiac Allograft Vasculopathy and Graft Failure in Pediatric Heart Transplant Recipients After Rejection with Severe Hemodynamic Compromise.

Kleinmahon et al. The Journal of Heart and Lung Transplantation, March 2019

STUDY HIGHLIGHTS

- Risk factors for and survival after rejection with severe hemodynamic compromise (RSHC) are not fully characterized in pediatric heart transplants.
- 3259 patients in Pediatric Heart Transplant Study Database.
- RSHC developed in 309 study patients (9.5%) at a median time of 1.2 years post-transplant.
- Risk factors for RSHC were identified from this cohort (table).
- Patients who developed RSHC late (>1 year post-transplant) had an increased risk of graft failure starting at 4 years post-RSHC compared with those who developed RSHC early (<1 year post-transplant) (figure).

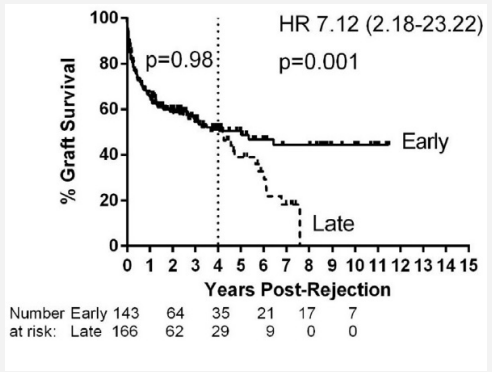
CENTRAL FIGURES

Table Significant Predictors for Time to Rejection With Severe Hemodynamic Compromise

	Multivariable analysis	
Variable	HR (95% CI)	*p*-value
Age at heart transplant		
1–5 years vs < 1 year	**1.51 (1.04–2.18)**	**0.031**
6–10 years vs < 1 year	1.22 (0.79–1.88)	0.378
> 10 years vs < 1 year	**1.83 (1.29–2.60)**	**<0.001**
Recipient race black	**1.64 (1.25–2.15)**	**<0.001**
Primary diagnosis myocarditis vs cardiomyopathy	1.40 (0.77–2.57)	0.272
Prior cardiac surgery	**1.55 (1.03–2.31)**	**0.034**
Donor crossmatch positive vs negative	1.16 (0.80–1.68)	0.448
Recipient on inotropes, pressors, or thyroid hormones at HT	**1.45 (1.09–1.94)**	**0.010**
Donor cause of death CNS tumor vs anoxia	1.51 (0.55–4.17)	0.425
Donor downtime	**0.75 (0.58–0.96)**	**0.024**
VAD support vs no VAD support	**1.65 (1.18–2.29)**	**0.003**
Steroids maintenance	**1.39 (1.06–1.82)**	**0.017**
Cardiopulmonary bypass time	1.00 (1.00–1.00)	0.414

CI, confidence interval; CNS, central nervous system; HR, hazard ratio; HT, heart transplant; VAD, ventricular assist device.

Kaplan-Meier survival curve illustrating post-RSHC graft survival differences between patients who experienced early vs late RSHC



REVIEWER'S COMMENTS

- While many RSHC risk factors are non-modifiable, proper identification of patients at higher risk for RSHC may improve surveillance.
- While any RSHC was associated with increased risk of graft loss, patients with a late episode of RSHC are at particular risk for subsequent graft loss.

LIMITATIONS:

- This is a retrospective registry study.
- There are minor center-specific variations in definitions & treatment of rejection.

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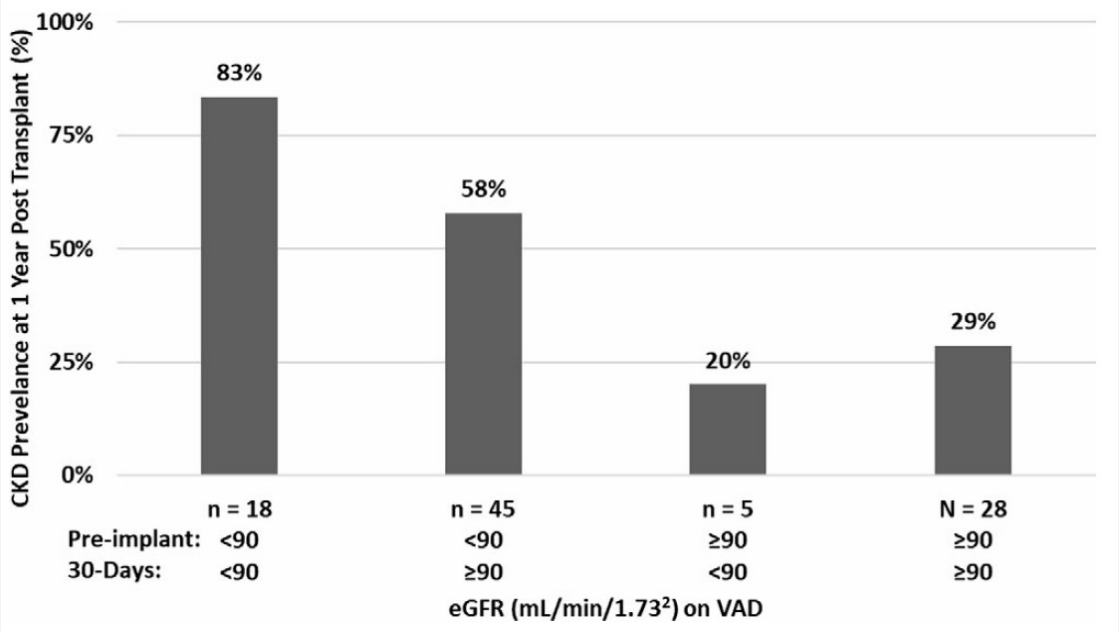
Renal Injury and Recovery in Pediatric Patients After Ventricular Assist Device Implantation and Cardiac Transplant.

Hollander et al. Pediatric Transplantation, August 2019

STUDY HIGHLIGHTS

- Worsening renal function in pediatric patients listed for heart transplant has been associated with early post-transplant mortality.
- Hypothesis: Persistent renal dysfunction at 7 days and/or 1 month after VAD implantation would predict chronic kidney disease and/or the need for renal replacement therapy one year after heart transplant (HT).
- Hollander and colleagues linked 207 patients enrolled between 9/2012 and 12/2016 in the PEDIMACS *and* PHTS registries.
- The primary outcome studied was the prevalence of chronic kidney disease (CKD) one year after HT based on eGFR.

CENTRAL FIGURE



- Prevalence of CKD at 1 year after HT is highest among patients with eGFR <90mL/min/1.73m^2 prior to implant who failed to normalize renal function 30 days after VAD implant (P = 0.003).
- Renal recovery is an important prognostic indicator of post-operative renal function in patients undergoing cardiac surgery.
- Renal injury that does not improve with VAD support predicts long-term CKD which is likely to persist after HT.

REVIEWER'S COMMENTS

- Novel methodology of linking two databases to serially follow renal function across the continuum of HF care.
- Patients with immediate improvement in renal function after VAD implantation may have more resilient function when they are placed on potentially nephrotoxic drugs after transplant.

LIMITATIONS:

- Duration of dialysis or duration and trend of renal insufficiency were not available.
- The etiology of the acute kidney injury, and the effects of calcineurin inhibitor use or graft function on renal function were not available.