Jehovah Witness Patients: Should We Liberalize Criteria for Heart Transplantation?

CEDARS-SINAI
SMIDT HEART INSTITUTE

Rayshma Sharoff, BS, Jignesh Patel, MD, PhD, Michelle Kittleson, MD, PhD, Lawrence Czer, MD, Ryan Levine, BS, Sadia Dimbil, BS, Nena Musto, RN, David Chang, MD, Evan Kransdorf, MD, PhD, Alfredo Trento, MD, Jon Kobashigawa, MD

Cedars-Sinai SMIDT Heart Institute, Los Angeles, CA

Abstract

Background: Jehovah Witness (JW) patients (pts) with end-stage heart disease present a complex surgical challenge. JW pts do not accept blood products and are at risk for intraoperative death from extensive blood loss. Blood substitutes may not be an option. Many JW pts, however, will accept cell-saver units (CSU). Heart transplantation (HTx) may be associated with extensive blood loss. Nonetheless, we have performed successful HTx surgeries in select JW pts and present the question as to whether we should liberalize criteria for JW patients for HTx.

Methods: Between 2012-2015 we assessed 437 pts undergoing HTx of which 5 were JW. JW pts were determined to be acceptable for HTx if deemed to have low risk for excess perioperative bleeding, including no prior sternotomy or bleeding tendencies. 4/5 pts agreed to use of a CSU. Endpoints included 2-year survival, 2-year freedom from cardiac allograft vasculopathy (CAV) as defined by ≥ 30% stenosis via angiography, 2-year freedom from non-fatal major adverse cardiac events (NF-MACE: myocardial infarction, new congestive heart failure, percutaneous coronary intervention, implantable cardioverter defibrillator/pacemaker implant, stroke), 2-year freedom from any-treated rejection (ATR), acute cellular rejection (ACR) and antibody-mediated rejection (AMR). A control group of 198 HTx pts without prior sternotomy were comparators.

Results: All 5 JW pts were Status 1 with mean waitlist time of 18 days ± 9.0 for HTx. Peri-operative blood counts were stable. There was no significant difference in 2-year survival, 2-year freedom from CAV, NF-MACE, ATR, ACR, and AMR.

Conclusion: Select JW pts appear to do well after HTx. Post-HTx outcomes are comparable to non-JW pts. Perhaps more liberal criteria for JW pts at low bleeding risk such as dual organ transplant, should be considered as acceptable candidates for HTx

Background

- Jehovah Witness (JW) patients (pts) with end-stage heart disease present a complex surgical challenge
- JW pts do not accept blood products and are at risk for intraoperative death from extensive blood loss. Blood substitutes may not be an option
- Many JW pts, however, will accept cell-saver units (CSU)
- Heart transplantation (HTx) may be associated with extensive blood loss

Purpose

- To present the question as to whether one should liberalize criteria for JW patients for heart transplantation

Methods

- Between 2012-15 we assessed 437 pts undergoing HTx of which 5 were JW
- JW pts were determined to be acceptable for HTx if deemed to have low risk for excess perioperative bleeding, including no prior sternotomy or bleeding tendencies
- 4/5 pts agreed to use of a CSU
- Endpoints included:
  - 2-year survival
  - 2-year freedom from cardiac allograft vasculopathy (CAV) as defined by ≥ 30% stenosis via angiography
  - 2-year freedom from non-fatal major adverse cardiac events (NF-MACE: myocardial infarction, new congestive heart failure, percutaneous coronary intervention, implantable cardioverter defibrillator/pacemaker implant, stroke)
  - 2-year freedom from any-treated rejection (ATR)
  - 2-year freedom from acute cellular rejection (ACR)
  - 2-year freedom from antibody-mediated rejection (AMR)
- A control group of 198 HTx pts without prior sternotomy were comparators.

Demographics

Demographics	Jehovah Witness (n=5)	Control: No Sternotomy (n=198)	Log-Rank P-Value
Mean Recipient Age, Years ± SD	56.6 ± 3.6	57.6 ± 12.3	0.859
Mean Donor Age, Years ± SD	32.6 ± 12.9	37.0 ± 13.3	0.467
Body Mass Index, Mean ± SD	22.3 ± 1.7	25.4 ± 4.4	0.115
Female (%)	20.0%	30.3%	1.000
Previous Pregnancy in Females (%)	100.0%	76.7%	0.246
Ischemic Time, Mean Mins ± SD	127.2 ± 45.6	150.2 ± 57.8	0.379
Primary Reason for Transplant, Underlying Diagnosis of Coronary Artery Disease (%)	20.0%	17.2 %	1.000
Status 1 at Transplant (%)	100.0%	74.2%	0.334
Cytomegalovirus Mismatch (%)	80.0%	32.0%	0.042
Diabetes Mellitus (%)	0.0%	24.2%	0.594
Treated Hypertension (%)	66.7%	23.6%	0.147
Insertion of Mechanical Circulatory Support Device (%)	0.0%	0.0%	1.000
Prior Blood Transfusion (%)	0.0%	12.8%	1.000
Pre-Transplant PRA ≥ 10% (%)	20.0%	22.2%	1.000
Pre-Transplant Creatinine, Mean ± SD	1.1 ± 0.4	1.3 ± 0.5	0.338

Outcomes

Endpoints	Jehovah Witness (n=5)	Control: No Sternotomy (n=198)	Log-Rank P-Value
2-Year Survival	80.0%	88.4%	0.601
2-Year Freedom from CAV	60.0%	88.4%	0.058
2-Year Freedom from NF-MACE	100.0%	97.5%	0.708
2-Year Freedom from Any-Treated Rejection	80.0%	86.4%	0.758
2-Year Freedom from Acute Cellular Rejection	100.0%	92.4%	0.502
2-Year Freedom from Antibody-Mediated Rejection	100.0%	98.0%	0.739

Results Summary

- All 5 JW pts were Status 1 with mean waitlist time of 18 days ± 9.0 for HTx
- Peri-operative blood counts were stable
- There was no significant difference in: 2-year survival, 2-year freedom from CAV, NF-MACE, ATR, ACR, and AMR

Conclusion

- Select JW pts appear to do well after HTx
- Post-HTx outcomes are comparable to non-JW pts
- Perhaps more liberal criteria for JW pts at low bleeding risk such as dual organ transplant, should be considered as acceptable candidates for HTx

Author Disclosures

R. Sharoff: None. **J. Patel:** G; C; Alexion, Pfizer, Alnylam. O; C; Therakos. **M. Kittleson:** None. **L. Czer:** G; C; St. Jude Medical. **R. Levine:** None. **S. Dimbil:** None. **N. Musto:** None. **D. Chang:** G; C; Mesoblast, Amgen. S; C; Abbott Laboratories, AbbVie, Repligen. **E. Kransdorf:** None. **A. Trento:** None. **J. Kobashigawa:** G; C; CareDx, Sanofi, CSL Behring.