Does Occupation Affect Outcome Following Heart Transplantation?

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Abstract

Background: Among many social factors affecting outcome after heart transplantation (HTx), occupation (OCC) may be important for compliance as it may impact infection, rejection and survival.

Methods: Between 2007-2012 we assessed 283 HTx outcomes according to OCC. These included manual labor (blue-collar) (n=117), white-collar (n=154), and military (n=12). Specific OCC subcategories were selected based on larger numbers and included teachers(n=11), physicians(n=24) and business owners (n=13). We assessed 1-yr freedom from rejection and infection, 5-yr survival, 5-yr freedom from cardiac allograft vasculopathy(CAV) (angiographic stenosis ≥ 30%), and 5-yr freedom from nonfatal major adverse cardiac events (NF-MACE: myocardial infarction, new congestive heart failure, percutaneous coronary intervention, implantable cardioverter defibrillator/pacemaker implant, stroke). Compliance was assessed (cancelled or no-show appointments, lost to follow-up).

Results: There was no significant difference in 1-yr rejection, 5-yr survival or freedom from CAV among all groups. Numerically, military personnel did better in all outcomes except 5-yr freedom from NF-MACE. Teachers and business owners had a significantly reduced 5-yr freedom from NF-MACE vs. physicians (p=0.023, see table). There was no difference in compliance between professions.

Conclusion: OCC appears not to affect most outcomes or compliance following HTx. Military personnel may have better outcome. Further investigation into teachers and business owners having less freedom from NF-MACE is warranted but other variables may be important.

Background

- Among many social factors affecting outcome after heart transplantation (HTx), occupation (OCC) may be important for compliance as it may impact infection, rejection and survival.

Purpose

- To assess whether occupation affects outcomes after heart transplantation.

Methods

- Between 2007-2012 we assessed 283 HTx outcomes according to OCC.
- These included manual labor (blue-collar) (n=117), white-collar (n=154), and military (n=12).
- Specific OCC subcategories were selected based on larger numbers and included teachers(n=11), physicians(n=24) and business owners (n=13).
- Endpoints included:
  - 1-yr freedom from rejection and infection
  - 5-yr survival
  - 5-yr freedom from cardiac allograft vasculopathy(CAV) (angiographic stenosis ≥ 30%)
  - 5-yr freedom from nonfatal major adverse cardiac events (NF-MACE: myocardial infarction, new congestive heart failure, percutaneous coronary intervention, implantable cardioverter defibrillator/pacemaker implant, stroke)
- Compliance was assessed (cancelled or no-show appointments, lost to follow-up).

Demographics

Demographic	Blue-Collar Workers (n=117)	White-Collar Workers (n=154)	Military Personnel (n=12)	P-Value
Mean Recipient Age, Years ± SD	52.9 ± 12.3	56.7 ± 11.5	59.3 ± 14.2	0.004
Mean Donor Age, Years ± SD	33.0 ± 12.6	35.7 ± 12.7	38.3 ± 10.4	0.129
Body Mass Index, Mean ± SD	25.1 ± 4.9	25.7 ± 4.8	28.4 ± 4.6	0.084
Female (%)	12.9%	35.1%	0.0%	<0.001
Previous Pregnancy in Females (%)	73.3%	72.2%	---	0.932
Ischemic Time, Mean Mins ± SD	201.1 ± 58.2	184.1 ± 65.7	202.8 ± 52.3	0.081
Primary Reason for Transplant, Underlying Diagnosis of Coronary Artery Disease (%)	35.9%	47.4%	75.0%	0.014
Status 1 at Transplant (%)	70.9%	64.9%	50.0%	0.263
Cytomegalovirus Mismatch (%)	15.7%	25.8%	40.0%	0.062
Diabetes Mellitus (%)	41.6%	36.2%	50.0%	0.513
Treated Hypertension (%)	62.6%	53.6%^	90.0%	0.045
Insertion of Mechanical Circulatory Support Device (%)	39.5%	19.0%	33.3%	0.001
Prior Blood Transfusion (%)	38.6%	37.4%	18.2%	0.408
Pre-Transplant PRA ≥ 10% (%)	30.7%	33.1%	25.0%	0.803
Pre-Transplant Creatinine, Mean ± SD	1.5 ± 1.3	1.5 ± 1.9	1.4 ± 0.3	0.930
ATG Induction Therapy (%)	49.5%	52.4%	50.0%	0.902

Outcomes

Endpoints	Blue-Collar Workers (n=117)	White-Collar Workers (n=154)	Military Personnel (n=12)	P-Value
% Non-Compliance	24.8%	26.0%	8.3%	0.899
1-Year Freedom from Any-Treated Rejection	87.1%	86.4%	91.7%	0.874
1-Year Freedom from Acute Cellular Rejection	92.3%	93.5%	100.0%	0.575
1-Year Freedom from Antibody-Mediated Rejection	98.3%	96.1%	100.0%	0.462
1-Year Freedom from Infection	53.8%	55.0%	75.0%	0.405
5-Year Survival	75.2%	79.9%	91.7%	0.305
5-Year Freedom from CAV	81.2%	81.8%	83.3%	0.883
5-Year Freedom from NF-MACE	81.7%	86.4%	75.0%	0.380

Endpoints	Teachers (n=11)	Physicians (n=24)	Business Owners (n=13)	P-Value
% Non-Compliance	36.4%	16.7%	46.2%	0.116
1-Year Freedom from Any-Treated Rejection	90.9%	87.5%	100.0%	0.361
1-Year Freedom from Acute Cellular Rejection	100.0%	91.7%	100.0%	0.533
1-Year Freedom from Antibody-Mediated Rejection	100.0%	100.0%	100.0%	1.000
1-Year Freedom from Infection	60.0%	52.2%	46.2%	0.860
5-Year Survival	72.7%	83.3%	92.3%	0.706
5-Year Freedom from CAV	72.7%	79.2%	84.6%	0.464
5-Year Freedom from NF-MACE*	72.7%	100.0%	69.2%	0.023

*Business Owners vs Physicians, p=0.003, Teachers vs Physicians, p=0.007

Results Summary

- There was no significant difference in 1-yr rejection, 5-yr survival or freedom from CAV among all groups.
- Numerically, military personnel did better in all outcomes except 5-yr freedom from NF-MACE.
- Teachers and business owners had a significantly reduced 5-yr freedom from NF-MACE vs. physicians (p=0.023, see table).
- There was no difference in compliance between professions.

Conclusion

- OCC appears not to affect most outcomes or compliance following HTx.
- Military personnel may have better outcome.
- Further investigation into teachers and business owners having less freedom from NF-MACE is warranted but other variables may be important.

Author Disclosures