



OUTCOMES OF HIV-POSITIVE PATIENTS POST CARDIAC TRANSPLANTATION

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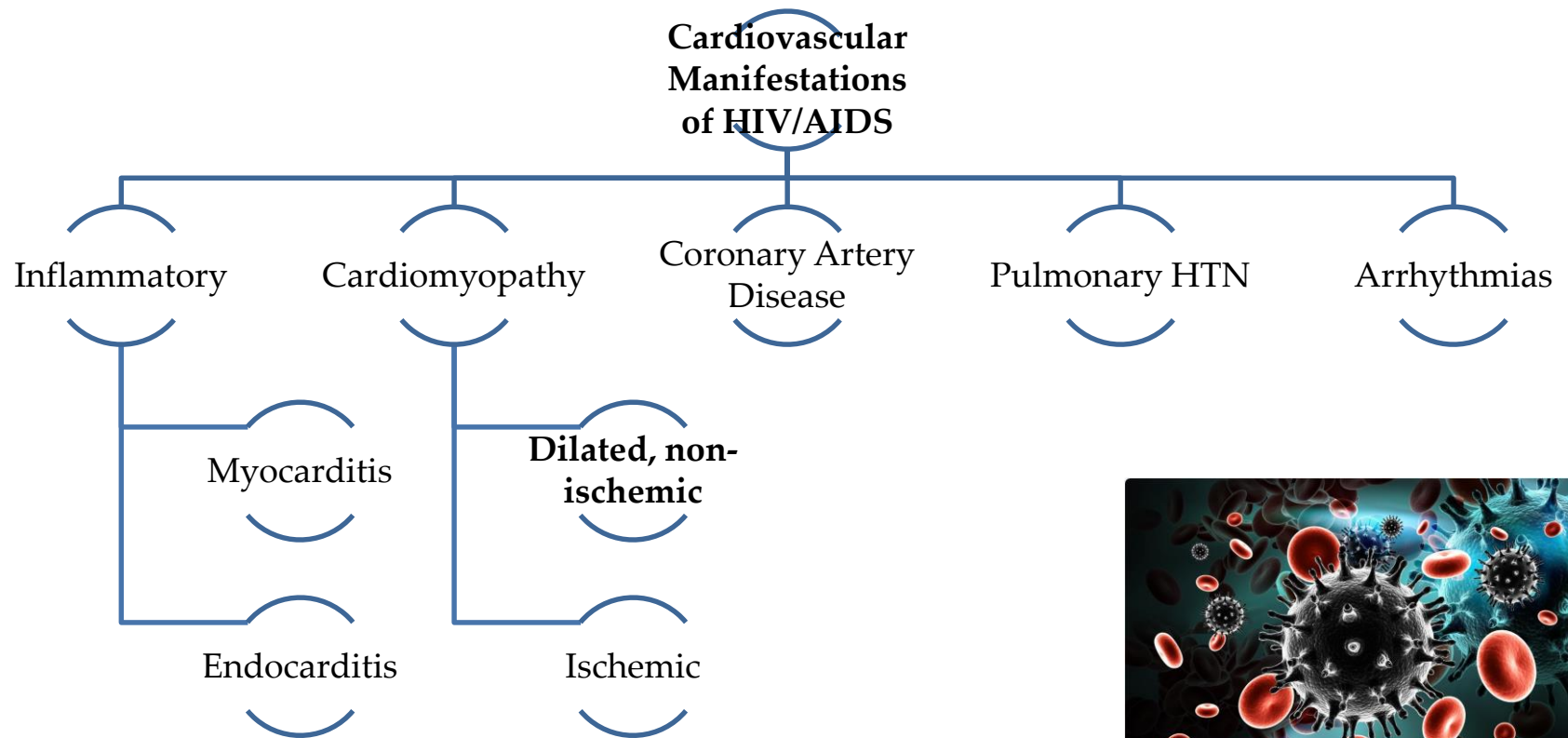
Author Disclosures

- None

Background

- Human immunodeficiency virus (HIV) infection was traditionally widely considered a contraindication for heart transplantation (HT)
- However, survival rates have improved significantly in HIV+ patients since the advent of highly active anti-retroviral therapy (HAART) regimens in 1996
- First cardiac transplantation in HIV+ patient was performed in 2001

Background



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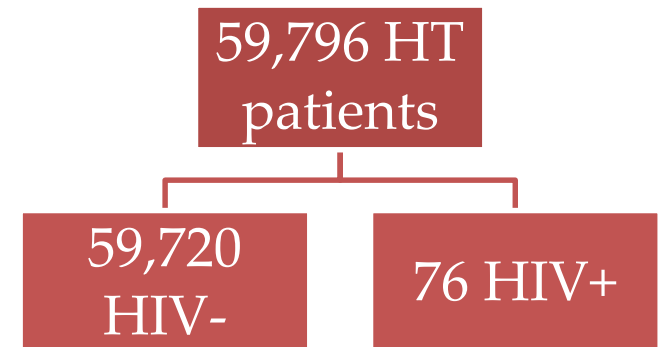
- Most national transplantation programs now use similar clinical, immunological, and virological HIV criteria for HT
 - Being on and able to tolerate effective HAART
 - CD4 cell count > 200 cells/mm³
 - Absence of active AIDS-defining opportunistic infections or malignancy
 - Undetectable HIV viral load (< 50 copies/mL)

Objective

- Assess the long-term post-cardiac transplantation outcomes of HIV positive patients compared to HIV negative patients from a large national database

Methods

- United Network Organ Sharing (UNOS) registry database
- 1987 – 2019
- Differences in baseline characteristics between HIV- and HIV+ patients assessed
- Survival was compared using multivariate Cox proportional hazard regression analysis



Results – Baseline Characteristics

Characteristics	HIV - (N = 59,720)	HIV + (N = 76)	P value
Recipient age – year (mean ± SD)	46.4 ± 19.4	46.2 ± 15.4	0.91
Recipient female sex – no. (%)	16,050 (26.9%)	15 (19.7%)	0.16
Race – no. (%)			< 0.001
White	42,195 (70.7%)	29 (38.2%)	
Black	10,528 (17.6%)	37 (48.7%)	
Hispanic	4,724 (7.9%)	8 (10.5%)	
Other	2,273 (3.8%)	2 (2.6%)	
Diabetes mellitus – no. (%)	11,343 (21.4%)	15 (19.7%)	0.73
Dialysis dependent – no. (%)	1,889 (3.2%)	4 (5.3%)	0.30
Smoking – no. (%)	21,161 (35.4%)	33 (43.4%)	0.15
Prior non-transplant cardiac surgery – no. (%)	12,461 (20.9%)	26 (34.2%)	0.004
Donor age – year (mean ± SD)	28.3 ± 14.0	31.4 ± 12.2	0.056

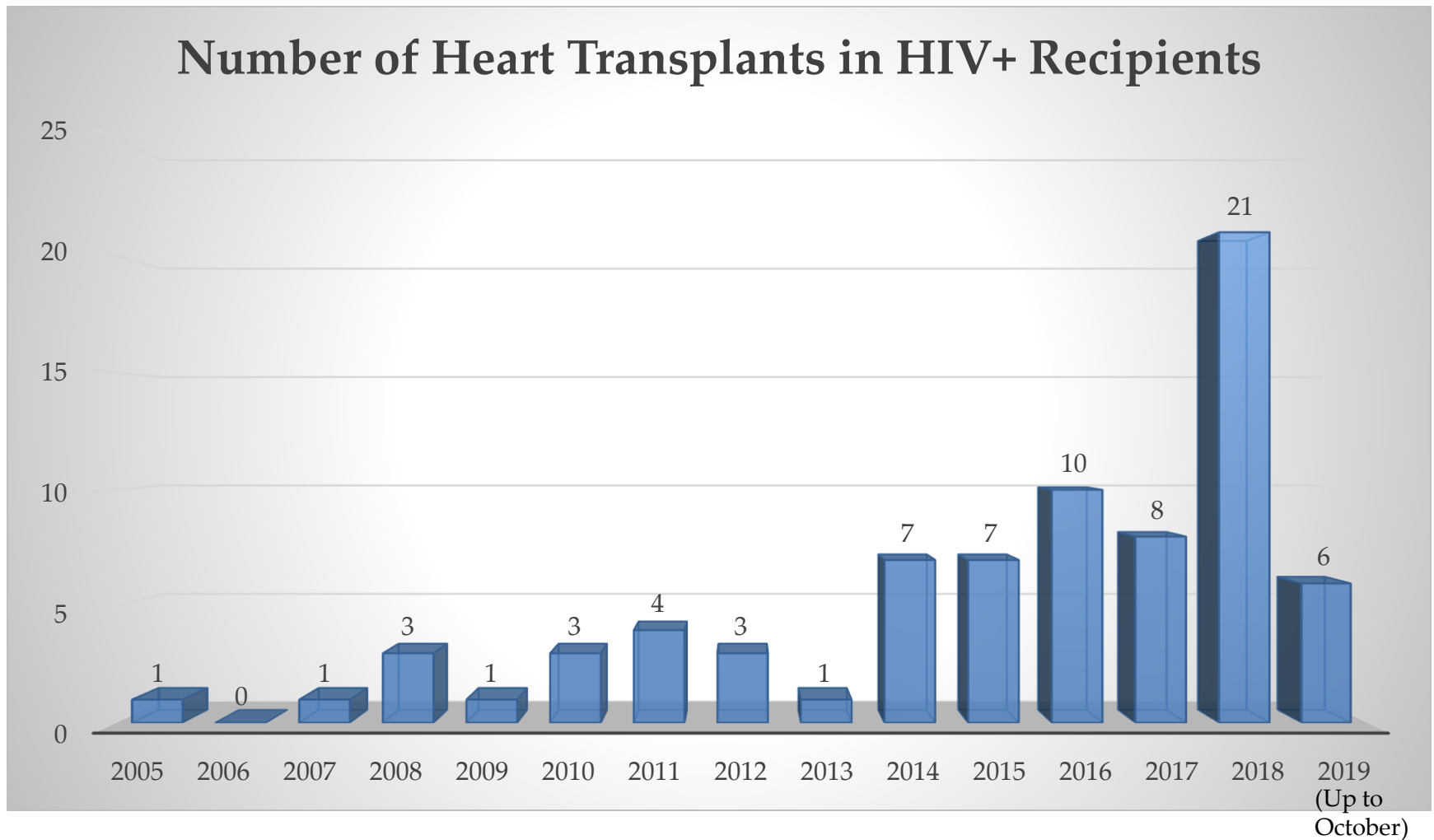
Results – Characteristics at Time of Transplant

Characteristics	HIV - (N = 59,720)	HIV + (N = 76)	P value
Ischemic time			0.75
0-1 hour	8325 (14.3%)	9 (12.0%)	
2 - < 3 hours	17,856 (30.6%)	20 (26.7%)	
3 - < 4 hours	20,734 (35.6%)	30 (40.0%)	
≥ 4 hours	11,362 (19.5%)	16 (21.3%)	
Requirement for ventilator, mechanical circulatory support, and/or inotropes – no. (%)	40,778 (68.3%)	62 (81.6%)	0.013
Intra-Aortic Balloon Pump	3301 (5.5%)	9 (11.8%)	0.016
Ventricular Assist Device	15,965 (26.7%)	36 (47.4%)	< 0.001
Extracorporeal Membrane Oxygenation	733 (1.2%)	1 (1.3%)	0.94
Mechanical Ventilator	2606 (4.4%)	5 (6.6%)	0.34

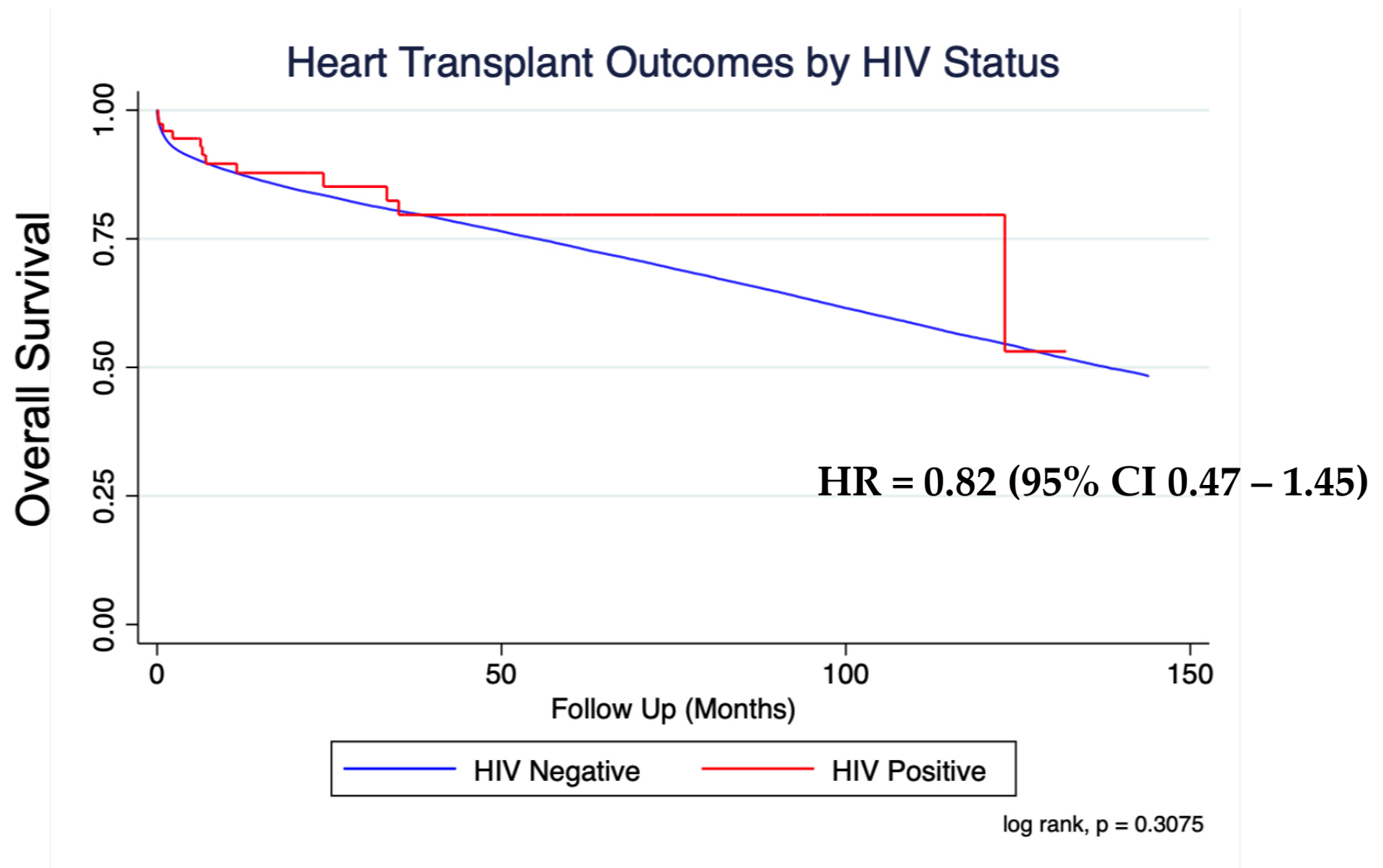
Results – Characteristics at Time of Transplant

Characteristics	HIV - (N = 59,720)	HIV + (N = 76)	P value
Serum Creatinine – mg/dL (mean ± SD)	1.3 ± 1.2	1.4 ± 1.1	0.38
Total Days on Waiting List (including inactive time) – median (IQR)	85 (26, 238)	83 (33.5, 207)	0.74
Most recent Wait List Status – no. (%)			< 0.001
1A (Old)	25,093 (42.1%)	46 (60.5%)	
1B (Old)	14,092 (23.6%)	16 (21.1%)	
2 (Old)	10,374 (17.4%)	3 (3.9%)	
Cardiovascular Cause of Death – no. (%)	8711 (32.0%)	5 (41.7%)	0.47

Trend of HT in HIV+ Recipients



Survival Outcomes



Conclusions

- HIV+ HT recipients were *less* likely:
 - To be white
 - To have undergone prior cardiac surgery
- At time of HT, HIV+ patients *more* frequently:
 - Required IABP and VAD support
 - Were listed as Status 1A in the prior UNOS heart allocation system
- The use of ECMO and mechanical ventilation were similar between HIV- and HIV+ patients

Conclusions

- HIV+ HT recipients may be “sicker” prior to the HT, but survival rates were similar to their HIV-counterparts up to 10 years of follow-up
- HIV status should not preclude carefully selected end-stage heart failure patients from HT consideration and candidacy

Future Directions



More data on post-transplant complications and outcomes needed



Defining a universal criteria for HT candidacy for HIV+ patients



Defining optimal immunosuppression regimen for HIV+ recipients



Consideration of HIV+ organs for HIV+ patients?

Sources

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Thank you!