Invasive Fungal Infections (IFI) After Heart Transplantation (HT): An 11-Year, Single-Center Experience

Michael Lin, Ignacio Echenique, Michael Angarone, Allen Anderson, Valentina Stosor
1Division of Infectious Diseases and 2Organ Transplantation, 3Division of Cardiology, Northwestern University Feinberg School of Medicine, Chicago, IL, USA

Abstract

Background: To determine the contemporary incidence, epidemiology and outcomes of IFI after HT.

Methods: All adult HT recipients at Northwestern Memorial Hospital from 6/2005-6/2016 were included, with IFI defined by EORTC/MSG criteria. Baseline characteristics were compared using t-test and Chi-square for continuous and categorical variables, respectively.

Results: 233 recipients were included, with 43 (18.4%) IFI (95% CI 14.8 - 22.0%). Risk factors for IFI included older age, heart failure, Charcot-Leyden crystals, CMV, and diabetes. Median age was 57.4 years (IQR 46 - 68). Invasive candidiasis was the most common IFI (29.3%) followed by Aspergillus (20.2%) and Blastomyces (13.8%). The spectrum of IFI is shown in Table 2. 30-day, 1-, and 3-month mortality with attributable mortality were 4.6, 13.3 and 20.5% respectively.

Conclusions:

• Invasive fungal infections are associated with increased mortality.

• Important potential predictors of invasive fungal infection include diabetes mellitus, re-operation and simultaneous heart-kidney transplantation.

• The role of targeted voriconazole for antifungal prophylaxis after heart transplant is unknown and deserves further study.

Table 2. Spectrum of Invasive Fungal Infections after Heart Transplantation

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Case Type of Fungal Infection Outcome, PTD Treatment(s)
Infection Status and Outcome

Invasive Candidiasis

1 C. albicans fungemia 7 CAS; FLC (until death) Resolution of infection; death PTD 1202, unrelated
2 C. glabrata and C. albicans fungemia 118 AFl Resolution of infection; death PTD 1502, unrelated
3 Disseminated C. Invasa\(v\)a 16 CAS; FLC Resolution of infection; alive PTD 1598
4 C. glabrata esophagitis 99 CAS (until death) Partial resolution of infection; death PTD 1462, unrelated
5 C. albicans sp. esophagitis 20 FLC Resolution of infection; PTD 1368, unrelated
6 C. parapsilosis fungemia 50 FLC Resolution of infection; PTD 3032, unrelated
7 C. glabrata fungemia 20 LAMB (until death) Resolution of infection; death PTD 43, MOEF, unrelated
8 Cryptococcosis 8 P. chowta fungemia 2 FLC Resolution of infection; PTD 2349
9 Endemic Mycoses
10 Pulmonary H. capsulatum 491 ITS (until death) Resolution of infection; death PTD 1602, cardiac arrest, unrelated
11 Pulmonary B. dermatitidis 1043 VRC; LAMB; ITS, FLC Resolution of infection; PTD 1558
12 Disseminated B. dermatitidis 704 LAMB; ITS Resolution of infection; PTD 747
13 Pulmonary H. capsulatum 472 LAMB; ITS, VRC Resolution of infection; PTD 524
14 Aspergillosis
15 Pulmonary A. fumigatus non-fungemia sp. 128 VRC; CAS; POS Resolution of infection; PTD 1578
16 Pulmonary A. fumigatus fungemia 77 VRC; CAS Partial resolution of infection; death PTD 265, acute rejection, unrelated
17 Pulmonary A. fumigatus 43 VRC Resolution of infection; PTD 1550
18 Pulmonary A. fumigatus fungemia 479 VRC; POS Resolution of infection; PTD 732
19 Pulmonary A. fumigatus fungemia 151 VRC Partial resolution of infection; death PTD 717
20 Pulmonary A. fumigatus 20 VRC (until death) Partial resolution of infection; death PTD 45, acute rejection, unrelated
21 Pulmonary A. fumigatus fungemia 293 CAS; VRC Resolution of infection; PTD 732
22 Mucormycosis
23 Pulmonary R. mucronatus sp. 79 LAMB; CAS; POS (until death) Partial resolution of infection, death PTD 743, cardiac arrest, unrelated
24 Pulmonary R. mucronatus sp. 308 LAMB; POS Resolution of infection; PTD 918
25 Pulmonary C. neoformans sp. 94 Lobestompy; POS; ISA (until death) Partial resolution of infection; death PTD 449; MOEF, unrelated
26 Demifascitis Mollusca Infestations
27 Pulmonary multifocal cutaneous Alternaria alternata 342 VRC (until death) Partial resolution of infection; death PTD 362, Pneumocystis-related ARDS, unrelated

References