Methods. We retrospectively reviewed medical records of adult (≥ 18 years) heart transplant recipients with detectable CMV viremia from 2016-2018 resulted during routine clinical screening.

Results. Ninety-seven heart transplant recipients with a detectable CMV viral load were identified. Of those, 38 (37.2%) had a quantifiable viral load above the 137 IU/mL threshold. When compared to the individuals with a detectable viral load below the threshold (< 137 IU/mL), they had similar age at time of transplant, increased likelihood of donor/recipient CMV IgG mismatch, and were more frequently on 900mg daily of prophylaxis at time of viremia. Of the individuals with CMV DNAemia above the threshold, the median time to viremia was 271.4 days and the median peak viral load was 701 IU/mL. When limiting analysis to only recipients who were CMV IgG positive, patients with viremia had similar age and more likely to be on 900mg daily of valganciclovir as prophylaxis when compared to individuals with CMV viremia < 137 IU/mL. When comparing CMV D+/R- patients, age and rates of 900mg valganciclovir as prophylaxis were similar (Table 1).

Conclusion. We found that despite receipt of CMV prophylaxis, an appreciable number of both R+ and D-/R+ heart transplant recipients developed breakthrough DNAemia despite being on prophylaxis of valganciclovir as recommended by guidelines. Despite receipt of the higher 900 mg daily dose, high risk patients had higher rates of breakthrough DNAemia at our institution compared with R+ intermediate risk patients. More research is needed to evaluate the optimal dose and duration for prophylaxis in heart transplant patients against CMV.

Disclosures. **All Authors**: No reported disclosures

1110. Very Late Onset Infections Amongst Long Term Survivors of Kidney Transplantation

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Session: P-49. Infections in Immunocompromised Individuals

Background. Kidney transplant recipients (KTR) are at increased risk for infections immediately post-transplant due to intense immunosuppression. However, this risk decreases over time as immunosuppression is tapered. The incidence of infection in KTR many years after transplant is not well characterized. The aim of this study was to describe these "very-late onset infections" (VLIs) ≥ 10 years after KT.

Methods. We performed a retrospective chart review of patients age ≥ 18 years who underwent KT between 2003 and 2009 and who survived ≥ 10 years post-KT. VLIs included opportunistic infections (OIs) and non-OIs. Demographics, comorbidities, immunosuppression, and clinical data for VLIs ≥ 10 years from KT were collected. Simple logistic regression was performed to determine characteristics associated with risk for VLIs.

Results. Of 332 KTR that met the inclusion criteria, the majority were male (62.0%), white (59.6%), and the largest proportion was transplanted between the ages of 50-59 (28.3%); 220 (67.9%) were on mycophenolate-based regimens. The mean Charlson Comorbidity Index (CCI) was 4.7 (S.D. 2.0). Of 332, 103 (31.0%) KTR experienced ≥ 1 VLI amounting to 187 episodes. Compared to those without VLI, KTR with VLI were more likely to have diabetes (p=0.005), cardiovascular disease (p=0.004), low ALC (p < 0.001) and require dialysis (p=0.002). Of 103 KTR with VLI, 16 (15.5%) had OIs, while 87 KTR (84.5%) had non-OIs, most commonly urinary tract infection (n=85, 45.5%), pneumonia (n=35, 18.7%) and gastrointestinal infection (n=18, 9.6%). The most commonly isolated pathogens were *E. coli* (n=30, 16%), *K. pneumoniae* (n=16, 8.6%), MSSA (n=7, 3.7%), and *P. aeruginosa* (n=7, 3.7%). Higher CCI, diabetes, dialysis, cerebrovascular, cardiovascular disease and lower ALC were associated with increased risk for VLI (p < 0.05), while living donor KTR was protective (p=0.04). Additionally, every 1 year after transplant was associated with an increased risk of VLI (OR=1.31, p < 0.001).

Table 1: Demographics, comorbidities, immunosuppression, and clinical data for all patients

Variable	All Patients (n = 332)	No Very-Late Onset Infections (n = 229)	All Very-Late Onset Infections (n = 103)
Median age at time of transplant (range)	46 (18-76)	46 (18-76)	47 (20-73)
Age at time of transplant			
18-29	36 (10.8%)	30 (13.1%)	6 (5.8%)
30-39	72 (21.7%)	48 (21%)	24 (23.3%)
40-49	83 (25%)	58 (25.3%)	25 (24.3%)
50-59	94 (28.3%)	64 (28%)	30 (29.1%)
60-69	39 (11.8%)	24 (10.4%)	15 (14.6%)
70-79	8 (2.4%)	5 (2.2%)	3 (2.9%)
Living (vs. deceased)	294 (88.6%)	211 (92.1%)	83 (80.6%)
Living donor (vs. deceased/unknown)	146 (44%)	109 (47.6%)	37 (35.9%)
Retransplantation	28 (8.4%)	16 (7.0%)	12 (11.6%)
Median Years From Transplant to Last Follow Up (range)	12.1 (10-37)	11.9 (10-16)	13.1 (10-37)
Mean Charlson Comorbity Index (SD)	4.7 (2.0)	4.4 (1.8)	5.36 (2.2)
Male sex (versus female)	206 (62%)	146 (63.8%)	60 (58.3%)
Race/Ethnicity			
Asian	16 (4.8%)	10 (4.4%)	6 (5.8%)
Black	78 (23.5%)	52 (22.7%)	26 (25.2%)
Hispanic	39 (11.7%)	23 (10%)	16 (15.5%)
White	198 (59.6%)	143 (62.4%)	55 (53.4%)
Native American	1 (0.3%)	1 (0.4%)	0
Induction Methods			
Basiliximab	81 (24.4%)	51 (22.3%)	30 (29.1%)
Daclizumab	21 (6.3%)	16 (7.0%)	5 (4.9%)
Methylprednisone	116 (34.9%)	74 (32.3%)	42 (40.8%)
Thymoglobulin	57 (17.2%)	38 (16.7%)	19 (18.4%)
Unknown/Unspecified	59 (17.8%)	52 (22.7%)	7 (6.8%)
Maintenance Regimens			
Belatacept and prednisone	13 (3.92%)	6 (2.6%)	7 (6.8%)
Belatacept, mycophenolate, and prednisone	16 (4.8%)	8 (3.5%)	8 (7.8%)
Cyclosporine, mycophenolate, and prednisone	17 (5.1%)	10 (4.4%)	7 (6.8%)
Tacrolimus and Azathioprine	20 (6.0%)	18 (7.8%)	2 (1.9%)
Tacrolimus and mycophenolate	22 (6.6%)	14 (6.1%)	8 (7.8%)
Tacrolimus and prednisone	43 (13%)	27 (11.8%)	16 (15.5%)
Tacrolimus, mycophenolate, and prednisone	161 (48.5%)	120 (52.4%)	41 (39.8%)
Unknown	9 (2.7%)	8 (3.5%)	1 (0.97%)
Other	31 (9.3%)	18 (7.8%)	13 (12.6%)
Comorbidities			
Hepatitis C positive	14 (4.2%)	10 (4.4%)	4 (3.9%)
History of Diabetes	140 (42.2%)	85 (37.1%)	55 (53.4%)
Currently on Dialysis	56 (16.9%)	29 (12.7%)	27 (26.2%)
History of Cardiovascular Disease	114 (34.3%)	67 (29.3%)	47 (45.6%)
History of Lung Disease	6 (1.8%)	3 (1.3%)	3 (2.9%)
History of Chronic Liver Disease	17 (5.1%)	12 (5.2%)	5 (4.9%)
History of Cerebrovascular Injury	26 (7.8%)	13 (57%)	13 (12.6%)
History of Malignancy	54 (16.3%)	34 (14.8%)	20 (19.4%)
Number of Infection Episodes			
0	229 (69%)	229 (100%)	0
1	62 (18.7%)	0	62 (60.2%)
2	24 (7.2%)	0	24 (23.3%)
3	9 (2.7%)	0	9 (2.7%)
4+	8 (2.4%)	0	8 (2.4%)
Serologic Data			
CMV D+/R-	27 (8.1%)	21 (9.2%)	6 (5.8%)
CMV D-/R-	26 (7.8%)	21 (9.2%)	5 (4.9%)
CMV D?/R-	126 (38%)	88 (38.4%)	38 (36.9%)
CMV D+/R+	39 (11.7%)	30 (13.1%)	9 (2.7%)
CMV D-/R+	24 (7.2%)	19 (8.3%)	5 (4.9%)
CMV D?/R+	90 (27.1%)	50 (21.8%)	40 (38.8%)
Mean Absolute Lymphocyte Counts (10^3/µL)	1.37	1.48	1.11

Conclusion. VLIs were common in long-term survivors of KT and included both conventional and opportunistic pathogens. Every additional year from transplant incurred additional risk for VLI, particularly for those with multiple co-morbidities and lower ALC.

Disclosures. **All Authors**: No reported disclosures

1111. #BeASteward: Transforming Infectious Diseases Fellows Into Antimicrobial Stewards Using the IDSA Antimicrobial Stewardship Curriculum

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