Valganciclovir Dosing for Cytomegalovirus Prophylaxis in Heart Transplant Recipients

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Background

- Cytomegalovirus (CMV) is one of the most common infections after transplantations [1]
- CMV disease can cause significant mortality and morbidity in this population [1]
- Current guidelines recommend prophylaxis with 900mg valgancyclovir daily to prevent this [1,2], however, this practice appears to be heterogenous among different institutions [3]
- At our institution, the current protocol is to use 450mg daily of valganciclovir as prophylaxis

Objectives

- To determine incidence of CMV DNAemia in a contemporary cohort of heart transplant recipient
- To determine whether there is any difference in incidence of CMV DNAemia > or < 137 IU/ml depending on prophylactic antiviral dose and other clinical factors
- To determine the impact of patient age on DNAemia risk in high risk (CMV D+/R-) versus intermediate risk (CMV R+) based on donor and recipient CMV IgG serostatus

Methods

- Retrospective chart review of heart transplant recipients with detectable CMV DNAemia from 2016-2018 at the University of California Los Angeles
- CMV DNAemia defined as detectable CMV DNA any time after transplantation
- Dose of prophylaxis defined as dose of valganciclovir at time of DNAemia
- Groups stratified into CMV DNA ≥ 137 IU/mL (above threshold of detectable DNA) and CMV DNA < 137 IU/mL, CMV IgG recipient positive vs negative, and presence of CMV donor/recipient mismatch (CMV donor IgG positive and CMV recipient IgG negative)
- Continuous variables were compared using Mann-Whitney U test and categorical variables were compared using either chi-square test or Fischer's exact test.

Results

All patients with detectable CMV (n = 96)			
	CMV DNA ≥ 137 (n = 38)	CMV DNA < 137 (n=56)	p-value
Age at Transplant	60.5 (IQR 48.5-64)	57(IQR 46-63)	0.41
CMV donor/recipient mismatch	22 (57.9%)	8 (13.7%)	<0.01
On valgancyclovir prophylaxis at time of CMV detection	21 (55.2%)	13 (23.2%)	<0.01
900mg daily valgancyclovir	9 (23.7%)	2 (3.6%)	0.02
CMV recipient IgG positive (n = 66)			
	n = 16	n = 50	
Transplant Age	61.5 (IQR 35-65)	57 (IQR 46-63)	0.57
On valgancyclovir prophylaxis at time of CMV detection	8 (50%)	12 (24%)	0.05
900mg daily valgancyclovir	4 (25%)	2 (4%)	0.03
CMV donor/recipient mismatch (n = 30)			
	n = 22	n = 8	
Transplant Age	60 (IQR 49.8-62.3)	52.2 (IQR 34.3-57.8)	0.17
On valgancyclovir prophylaxis at time of CMV detection	13 (59.1%)	1 (12.5%)	0.04
900mg daily valgancyclovir	5 (22.7%)	0	0.287

Table 1. Clinical characteristics of individuals with CMV DNA < 137 and ≥ 137

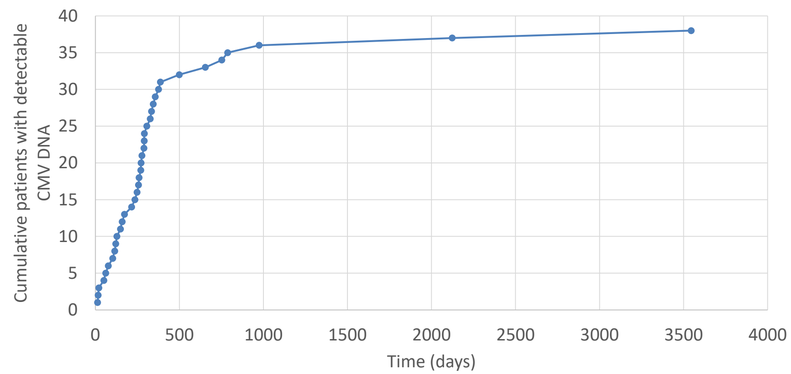

Table 2. Time to detection of CMV ≥ 137 IU/mL

- Twenty-four individuals (25%) were female. The median age at time of transplant was 58
- Of individuals with CMV DNA ≥ 137 IU/mL, the median time to DNAemia was 271.4 days
- The median peak DNAemia was 701 IU/mL of the patients with DNAemia >= 137 IU/mL
- One person was hospitalized specifically for CMV syndrome and due to a complication of CMV (foscarnet induction for UL54 and A87G mutations)

Conclusions

- Age at transplantation were similar between patients with detectable DNAemia groups as well as CMV recipient IgG positivity
- Difficult to interpret impact of valganciclovir dose given lower dose more commonly used on lower risk patients at our center
- Future directions: will be reviewing patients without history of CMV DNAemia to see how this differs by valganciclovir dose and CMV serology, as well as side effects related to valganciclovir dose

References

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