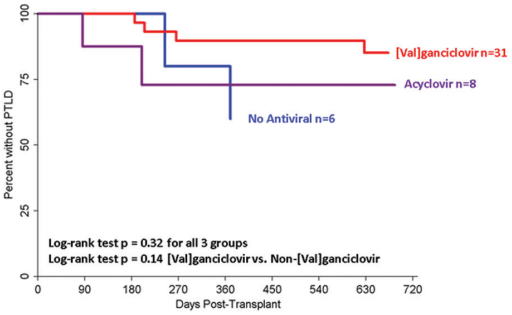

Figure 3: Time to PTLD for High EBV Risk (D+ / R–) Patients by Antiviral Use. Acyclovir is given 10 mg/kg/dose (max 400 mg) PO BID for 3 months for herpes/varicella prophylaxis. Valganciclovir 15 mg/kg/dose (if < 15 kg) or 500 mg/m2/dose (max 900 mg) or ganciclovir 5 mg/kg IV is given daily for 3-12 months for CMV prophylaxis.

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1565. Lymphocyte Subsets as Predictors of Cytomegalovirus Infection After Transplantation

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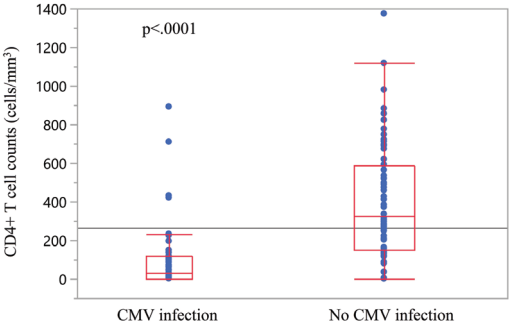
Background. Cellular immunity plays a critical role in controlling cytomegalovirus (CMV) infection after solid-organ transplantation (SOT). We correlated lymphocyte subsets with the risk and course of CMV after SOT.

Methods. We studied 130 selected kidney, heart, lung, pancreas, liver and composite tissue transplant patients who had blood samples collected for immunologic testing. We abstracted absolute lymphocyte count (ALC) and CD4+ and CD8+ T cell subsets, and correlated them with CMV infection and disease. CMV infection was diagnosed by quantitative PCR in blood and other clinical samples, or histopathology.

Results. Fifty-nine of 130 SOT patients developed CMV infection or disease. The median age was 57.5 years (IQR: 47.8–64). Gender distribution was equal. The median onset to CMV infection or disease was 10.5 months (IQR 5.5–18.7). The median ALC for the whole cohort was 565 (IQR, 310–1,083) cells/mm^3. An ALC <630 cells/mm^3 was correlated with CMV infection or disease (sensitivity 83%; specificity 70%). The median CD4+ T cell count for the whole cohort was 160.5 (IQR, 17.5–424.5) cells/mm^3. Patients with CD4+ T cell count <196 cells/mm^3 were at a higher risk of CMV infection or disease (sensitivity 88%; specificity 71%). The 59 SOT recipients with CMV infection or disease had a significantly lower median number of CD4+ T cells compared with those who did not develop CMV (29 vs. 325.5 cells/mm^3, $P < 0.0001$). A median CD4+ T cell count <45 cells/mm^3 was associated with CMV syndrome or tissue-invasive disease (sensitivity 66%; specificity 68%). Patients who had CMV relapse had significantly lower median CD4+ T cell count (9 vs. 68 cells/mm^3, $P = 0.005$). There was no association between CD8+ T cell count and CMV infection or disease. However, T cell functional analysis was not considered in this analysis.

Conclusion. Lower ALC and CD4+ counts, but not CD8+ T cell count, are significantly correlated with the risk and course of CMV infection and disease after SOT. These readily available clinical measures have the potential to assist in CMV disease management.

Figure 1. CD4+ T cell in solid-organ recipients with and without CMV infection.



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

1566. Is Primary CMV Infection Post-transplant Influenced by Circadian Rhythms?

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Background. Cytomegalovirus (CMV) infection causes significant morbidity after transplant. Patients can be stratified by donor and recipient CMV serostatus, but the infection phenotype remains variable. We hypothesized that some of this variability might be explained by circadian rhythms influenced by time of transplant.

Methods. Virological, demographic and transplant data were reviewed for liver and kidney transplant patients (n = 1,111) managed between 2002 and 2015 using pre-emptive therapy. Donor circulatory arrest time and reperfusion time in the recipient were split into four categories, chosen *a priori*. Patients were categorised into three groups depending on donor and recipient CMV serostatus. Differences between groups were assessed using chi-squared and Kruskall–Wallis tests.

Results. For the donor seropositive/recipient seronegative group (D+R–) all CMV parameters were highest when reperfusion occurred in the day or evening, and the lowest in the night or morning (see table).

			Day 10 a.m.–4 p.m. N = 101	Evening 4 p.m.–10 p.m. N = 53	Night 10 p.m.–4 a.m. N = 30	Morning 4 a.m.–10 a.m. N = 20	P Value
Developed CMV Viraemia Within 90 Days % (n)		Yes	76.2 (77)	73.6 (39)	66.7 (20)	45.0 (9)	0.039
		No	23.8 (24)	26.4 (14)	33.3 (10)	55.0 (11)	
Received anti-CMV Treatment % (n)		Yes	63.4 (64)	64.2 (34)	50.0 (15)	45.0 (9)	0.264
		No	36.6 (37)	35.9 (19)	50.0 (15)	55.0 (11)	
Among those that became viraemic	Peak viral load, copies/mL	Median (IQR)	14,870 (3,220–97,551)	23,789 (3,509–58,314)	5,685.5 (2,711–26,407)	6,238 (2,839–8,131)	0.074
	Duration viraemia, days	Median (IQR)	42 (24–63)	42 (18–70)	31 (21–57)	34 (26–35)	0.555
	Duration treatment, days	Median (IQR)	48 (33–64)	47.5 (29–67)	42 (29–66)	28 (21–41)	0.257

No such pattern was seen for circulatory arrest time, or in the D-R+ or D+R+ groups.

Conclusion. Time of day of transplant surgery appears to be associated with development of CMV viraemia and the parameters of infection in one subgroup of transplant patients. These differences could be explained by circadian rhythms of CMV replication and/or immunological parameters varying throughout the day. These data therefore provide support for further study of circadian effects on CMV replication and host CMV immunity.

Disclosures. **P. Griffiths**, shire: Scientific Advisor, funds paid to my institution not to me; chimerix: Scientific Advisor, funds paid to my institution not to me; sanofi pasteur: Grant Investigator, funds paid to my institution not to me; genentech: Scientific Advisor, funds paid to my institution not to me.

1567. Predicting Mortality Among Immunocompromised Patients Who Present with Infection

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Background. Recent sepsis definitions for the general population include Sequential Organ Failure Assessment (SOFA) ≥ 2 for patients admitted to intensive care unit (ICU), and quick SOFA (qSOFA) ≥ 2 for non-ICU patients. The objective of this study was to validate the predictive value of SOFA and qSOFA in immunocompromised patients.

Methods. Adult patients admitted between 2014 and 2017 with ICD-9 and ICD-10 codes for hematologic malignancies or transplant diagnoses who had suspected infection were included. Index date of suspected infection was defined as the time when blood culture was obtained, followed by intravenous antibiotic therapy, or vice versa (based on the definition used in SEPSIS-3 study, Seymour *et al.*). SOFA, qSOFA and SIRS components within 1 day of the index date were extracted from the medical record. A baseline risk model of mortality was created including age, race, gender, and Charlson comorbidity index. Each score was added to the baseline mortality risk model as a dichotomous variable (SOFA ≥ 2, qSOFA ≥ 2, and SIRS ≥ 2). For each risk model, a receiver operating characteristic (ROC) curve