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Session: P-49. Infections in Immunocompromised Individuals

Background. Community acquired respiratory virus infections (RVI) are a major concern in solid organ transplant (SOT) recipients due to severe complications such as lower respiratory tract infection (LRTI), superimposed fungal and bacterial pneumonia, intensive care admission and mortality. Besides influenza and respiratory syncytial virus (RSV), there is paucity of data of RVI in SOT recipients.

Table 1: Patients characteristics

Patient Characteristics(N=100)	
Female Gender	50%
Age	54 [range 18 – 79] years
Type of transplant	Kidney – 40%
	Lung – 33%
	Liver – 9%
	Heart – 7%
	Combined – 13%
Post-transplant onset of RVI	41 [range 0.7 – 267.7] months
History of rejection three months prior to infection	4%
Outpatient Management	26%
Neutropenia < 500 c/mcL	0%
Lymphopenia <1000 c/mcL	52%
Source of Respiratory Viral Panel	Nasopharyngeal swab – 79%
	Bronchoalveolar lavage – 20%
	Tracheal aspirate – 1%
Number of viruses identified in same RVP	One virus – 95%
	Two viruses – 5% (CoV229E-PIV3, RH/ENT-PIV1, RH/ENT-HMPV, RH/ENT-CoVOC43 in 2 patients)

Table 2: Concomitant infections

Concomitant infections	
Respiratory culture performed at diagnosis (43 cases)	No growth – 9 (20.9%)
	Normal respiratory flora – 20 (46.5%)
	P. aeruginosa – 8 (18.60%)
	M. abscessus – 1 (2.32%)
	MRSA – 1 (2.32%)
	E. coli – 1 (2.32%)
	S. pneumoniae – 1 (2.32%)
CMV viremia at time of diagnosis (51 patients)	2 patients >1000 IU/mL

Methods. Retrospective cohort study of a single large transplant center was performed. Data of multiplex qualitative PCR-based respiratory viral panel (RVP) samples collected between January 2017 and December 2019 were included. It is important to mention that our institution generally performs the RSV/influenza rapid detection assay as an initial test; if negative, the multiplex PCR panel is usually done. We did not include results from the RSV/influenza rapid test in this study.

Results. One hundred transplant patients with a single positive RVP were included (table 1). Transplanted organs include kidney (40%), followed by lung (33%) and liver (9%). Most common presenting symptoms were cough (52%), shortness of breath (28%) and rhinorrhea (26%). Of note fever was seen in only 24%. Most common RVI was Rhinovirus/Enterovirus (RHV/ENT) (59%), followed by non-SARS-CoV-2 Coronavirus (19%) and Parainfluenza (PIV) (14%). None of the patients had neutropenia, however, 52% had lymphocytopenia. Lung transplant patients developed LRTI in 70% of cases compared to non-lung transplant 64% (p=0.412). Multivariate analysis showed patients with PIV 3 were less likely to develop LRTI (p= 0.038). Significant Cytomegalovirus DNAemia (>137 IU/mL) was noted in 9.8% of the recipients. No proven or probable pulmonary fungal infection were noted within 3 months after diagnosis of RVI. Five patients were admitted to the Intensive care unit due to septic shock. Three patients died at 4, 5 and 35 days after diagnosis of RHV/ENT, PIV-3 and RHV/ENT respectively.

Conclusion. Most of the cases of RVI were due to RHV/ENT. Patients with PIV 3 were less likely to develop LRTI. Lung transplant recipients developed LRTI with similar incidence to non-lung recipients. Our data shows a very low mortality of 3% after RVI in our SOT cohort, which warrants larger studies.

Disclosures. Michele I. Morris, MD, Viracor Eurofins (Advisor or Review Panel member)

1104. Risk Factors and Outcomes of Refractory and/or Resistant Cytomegalovirus (CMV) Infection after Allogeneic Hematopoietic Stem Cell Transplantation

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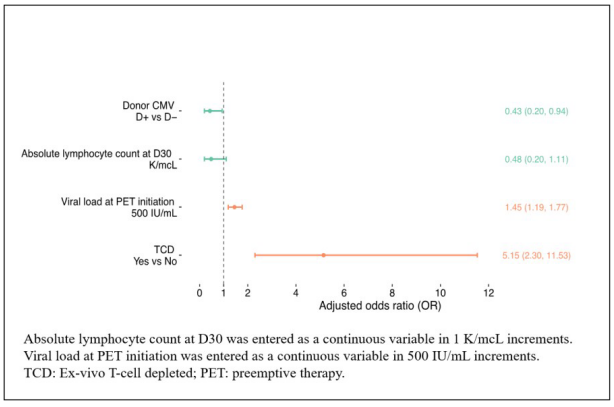
Session: P-49. Infections in Immunocompromised Individuals

Background. The epidemiology of CMV end-organ disease (EOD) after Hematopoietic Cell Transplant (HCT) in the era of preemptive therapy (PET) is defined. In contrast, less data exists on refractory and/or resistant (R/R) CMV. We report on 1) the incidence; 2) risk factors and outcomes of R/R CMV by 1-year post HCT.

Methods. Retrospective review of 167 CMV seropositive (R+) recipients of first marrow or peripheral blood HCT from 1/2014 - 12/2017 managed by PET. Refractory CMV was defined as failure to achieve >1 log10 decrease in CMV viral load (VL) and having VL >1,000 IU/mL after ≥14 day of PET. Resistant CMV required genotypic confirmation of resistance mutation(s) in UL54 and/or UL97 genes. End organ disease (EOD) was defined by standard criteria. Patients (pts) were followed through 1-year post HCT and were categorized in two mutually exclusive groups as R/R and no R/R. Demographics, clinical characteristics and outcomes were extracted from medical records and hospital databases. Univariable and multivariable logistic models were used to identify risk factors for R/R CMV.

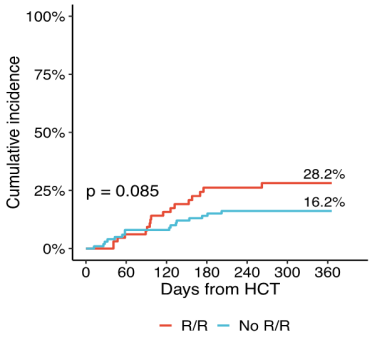
Results. Of 167 PET recipients, 91 (54.5%) received ex vivo T cell depleted (TCD) HCT; 40 (24.0%) had mismatched donor; and 26 (15.6%) had multiple myeloma. 66/167 (39.5%) pts developed refractory CMV (6 pts also had resistant CMV). Time from HCT to CMV viremia was shorter in R/R group: median (IQR) 21.5 (17.2-27.8) days compared to no R/R group: 26 (19-32) days (p=0.031). Maximum VL was higher for R/R compared to no R/R: median (IQR) 9,118 (2,849-18,456) and 868 (474-1,908), respectively (p< 0.001). In multivariable model, risk factors for R/R included TCD HCT (p< 0.0001) and higher VL at PET initiation (p=0.0002). In contrast, CMV seropositive donor (p=0.035) was protective (Figure 1). CMV EOD developed in 28.2% of R/R and 16.2% of no R/R groups (p=0.085) (Figure 2). Overall survival at 1 year was 59.1% for R/R compared to 83.1% for no R/R group (p=0.00027) (Figure 3).

Figure 1. Adjusted odds ratio (OR) and 95% confidence interval (CI) from multivariable model evaluating risk factors of refractory/resistant (R/R) CMV.



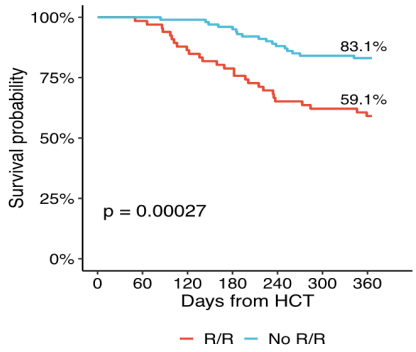
Absolute lymphocyte count at D30 was entered as a continuous variable in 1 K/mcL increments.
Viral load at PET initiation was entered as a continuous variable in 500 IU/mL increments.
TCD: Ex-vivo T-cell depleted; PET: preemptive therapy.

Figure 2. Cumulative incidence curves of CMV end-organ disease (EOD) at 1-year post HCT



Time to EOD (days)	Median	IQR
R/R	97	(89-153)
No R/R	91	(40-140)

Figure 3. Kaplan-Meier survival curves of overall survival (OS) at 1-year post HCT



Time to Death (days)	Median	IQR
R/R	169	(104-227.5)
No R/R	215	(180-250)

Conclusion. 1) Refractory and/or resistant CMV occurred in 39,5% of PET recipients. 2) T-cell depletion and higher CMV VL at PET initiation were risk factors for R/R CMV in multivariable models. 3) R/R CMV was associated with more EOD and worse overall survival.

Disclosures. **Sergio Giralt, MD**, **Amgen** (Advisor or Review Panel member, Research Grant or Support, Served an advisory board for Amgen, Actinuum, Celgene, Johnson & Johnson, JAZZ pharmaceutical, Takeda, Novartis, KITE, and Spectrum pharma and has received research support from Amgen, Actinuum, Celgene, Johnson & Johnson, and Miltenyi, Takeda.) **Miguel-Angel Perales, MD**, **Abbvie** (Other Financial or Material Support, Honoraria from Abbvie, Bellicum, Celgene, Bristol-Myers Squibb, Incyte, Merck, Novartis, Nektar Therapeutics, Omeros, and Takeda.)**ASTCT** (Other Financial or Material Support, Volunteer member of the Board of Directors of American Society for Transplantation and Cellular Therapy (ASTCT), Be The Match (National Marrow Donor Program, NMDP), and the CIBMTR Cellular Immunotherapy Data Resource (CIDR) Committee)**Cidara Therapeutics** (Advisor or Review Panel member, Other Financial or Material Support, Serve on DSMBs for Cidara Therapeutics, Servier and Medigene, and the scientific advisory boards of MolMed and NexImmune.)**Kite/Gilead** (Research Grant or Support, Other Financial or Material Support, Received research support for clinical trials from Incyte, Kite/Gilead and Miltenyi Biotec.) **Genovefa Papanicolaou, MD**, **Chimerix** (Research Grant or Support)**Merck&Co** (Research Grant or Support, Investigator and received funding and consulting fees from Merck, Chimerix, Shire and Astellas)

1105. The Burden of Infections Prior to Chimeric Antigen Receptor (CAR) Modified T-cell Therapy Predicts Post-CAR T-cell Infectious Complications

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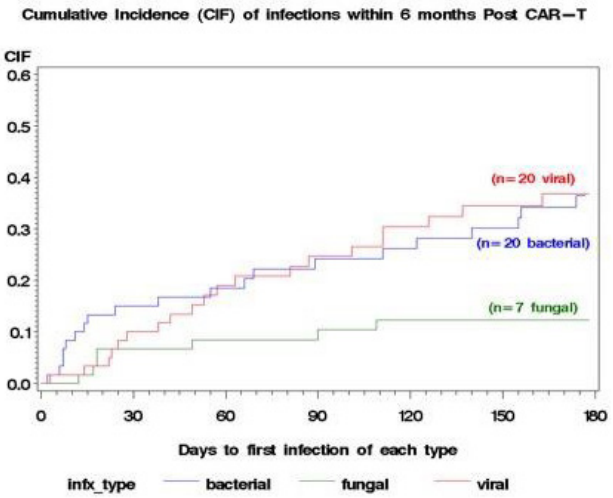
Session: P-49. Infections in Immunocompromised Individuals

Background. CAR T -cell therapy (CTT) is a novel treatment for B-cell cancers. CTT patients (pt) are at risk of infection due to neutropenia, cytokine release syndrome (CRS), and CAR T-cell related encephalopathy syndrome (CRES), which are treated with steroids and tocilizumab (anti-IL-6). This is a single-center study evaluating the risk factors for infection after CTT.

Methods. A retrospective review was conducted of 60 consecutive CTT recipients between 7/17/17 and 9/5/19. Data was collected from 6 months (mo) pre- and at least 6 mo post-CTT. Data was censored for death, additional chemotherapy, or loss to follow up. Cox proportional hazard and Poisson regression were used.

Results. Median age was 66 (23-84) years; 48% (29) were female. The most common cancer was non-Hodgkin lymphoma (89%, 54). 25% (15) had a prior stem cell transplant (SCT). 73% (44) and 45% (27) of pts developed CRS and CRES, respectively. 43% (26) received steroids; 65% (39) received tocilizumab. In the 6 mo pre-CTT, 39 infections occurred in 45% (27) of pts. 103 infections occurred in 66% (40) after CTT; 33 (55%) had an infection within 6 mo. Infections were bacterial (52%; 54/103), viral (30%; 37/103), fungal (10%; 10/103), mycobacterial (1%; 1/103), protozoal (1%; 1/103). Cumulative incidence of infection in the first 6 mo are shown in **Fig 1**. All-cause and infection-related mortality were 32% (19) and 15% (9), respectively. Mortality among pts with fungal infections was 20% (2/10). Infection density was 1.28 and 0.58 infections per 100 pt-days between days 0-30 and 30-89, respectively. Factors associated with infection post CTT were number (no.) of infections in the 6 mo prior to infusion (HR 1.62, CI [1.1-2.38]; p=0.015), no. of lines of therapy in the 6 mo pre-CTT (HR 1.52, CI [1.01-2.27]; p=0.04), prior allogeneic SCT (HR 5.96, CI [1.34-26.47]; p=0.019), and no. of tocilizumab doses. Grade 1 CRS and grade 2 CRES were risk factors between days 0-30 and 0-180, respectively (HR 4.67, CI [1.02 -21.4], p = 0.047; HR 2.48, CI [1.17-5.23], p = 0.02).

Fig 1: Cumulative Incidence of Infection 6 Months Post CAR T-cell Therapy



Conclusion. Infections after CTT are common. Infection before CTT was associated with risk of infection after CTT. Pt selection may ameliorate this risk. Mortality due to fungal infections was high. Randomized-controlled trials of antifungal prophylaxis in high-risk pts are needed.

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

1106. The incidence and risk factors associated with varicella zoster virus infection in kidney transplant recipients after 1-month acyclovir prophylaxis in a CMV preemptive therapy era

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Session: P-49. Infections in Immunocompromised Individuals

Background. Varicella zoster virus (VZV) infection is a well-known opportunistic infection in solid organ transplant recipients. Since the various strategies of the use of anti-herpetic drugs including ganciclovir or acyclovir have evolved, the epidemiology of VZV infection is changing. However, there are limited data on the recent incidence and risk factors of post-transplant VZV infection in popular preemptive ganciclovir era for CMV infection. We evaluated the incidence, risk factors and clinical characteristic of patients with development of post-transplant VZV infection in kidney transplant (KT) recipients after 1-month acyclovir prophylaxis in the hospital that adopted preemptive ganciclovir therapy for CMV infection.

Methods. All adult patients with seropositive CMV antibody admitted to a KT unit from January 2014 to December 2017 were retrospectively reviewed in a tertiary-care hospital in South Korea. Our hospital adopted preemptive ganciclovir therapy for CMV infection in all CMV seropositive KT recipients. We administered acyclovir prophylaxis for 1-month to CMV seropositive KT recipients. The primary endpoint was VZV infection development after KT.

Results. A total of 1295 KT recipients was followed up for 4295.8 person-years. The median follow-up period was 46.6 months (interquartile range (IQR) 34.3-59.5). Of the 1295 recipients, 100 (7.7%, 2.33 per 100 person-years, 95% confidence interval (CI) 1.89-2.83) patients developed VZV infection after KT. The median time for VZV infection development was 9.5 months (IQR 4.7-22.1). All patients had VZV-associated