The impact of HHV-6 in recipients of ex vivo T-cell depleted hematopoietic cell transplant

Yeon Joo Lee, MD, MPH[1, 3], Yiqi Su, MS[1], Roni Tamari, MD[2, 3], Ann A Jakubowski, MD, PhD[2, 3], Sergio A Giralt, MD,[2, 3], Genovefa A Papanicolaou, MD[1, 3]

[1]Infectious Diseases Service, [2]Adult Bone Marrow Transplantation Service, Department of Medicine, Memorial Sloan Kettering Cancer Center, New York, NY, [3]Weill Cornell Medical College, Cornell University, New York, NY

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Introduction

- HHV-6 viremia is associated with graft-versus-host disease (GVHD), cytopenia, and encephalitis after hematopoietic cell transplant (HCT).
- Recipients of ex vivo T-cell depleted (TCD) (CD34⁺ selected) HCT are at increased risk for viral infections. Since 2012, TCD HCT recipients at MSKCC were prospectively monitored for HHV-6 viremia.
- The objectives of our study were to
  1) identify risk factors of persistent HHV-6 viremia.
  2) examine the impact of persistent HHV-6 viremia on lymphocyte recovery.
  3) examine the impact of persistent HHV-6 viremia on survival.

Methods

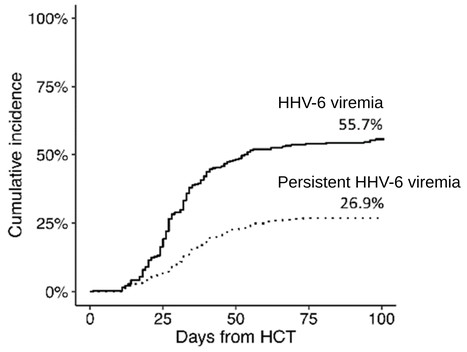
- Recipients with TCD HCT between 2012 and 2016 at MSKCC.
- CD34⁺ selection was performed by the CliniMACS CD34 Reagent system (Miltenyi Biotec, Germany).
- Routine monitoring for HHV-6 by quantitative PCR in plasma started on day+14 post-HCT (D+14) and through D+100.
- HHV-6 viremia was defined as ≥1 HHV-6 viral load >limit of quantification.
- Persistent HHV-6 viremia was defined as ≥2 consecutive viral loads ≥500 copies/mL.
- Cox proportional model was used to examine the risk factors of persistent HHV-6 viremia and 1-year overall survival was estimated by Kaplan-Meier method.

Baseline characteristics

Characteristics		N (%) = 312 (%)
Age	Median (range)	54.8 (21.7 – 73.3)
Sex	Male	183 (59%)
Donor	Matched	158 (83%)
CMV serology	R+	184 (59%)
	R-	128 (41%)
Acute GVHD	2-4	54 (17%)

- Underlying diseases: acute leukemia/myelodysplastic syndrome 210 (67%), multiple myeloma 75 (24%), myeloproliferative disorder 24 (8%), nonhematologic malignancies 3 (1%)

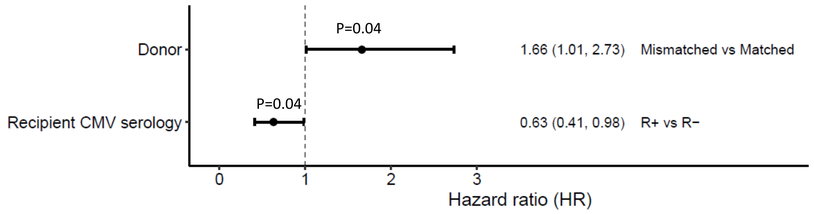
27% TCD HCT developed persistent HHV-6 viremia



HHV-6 disease: 7 patients (8% with persistent HHV-6 viremia)

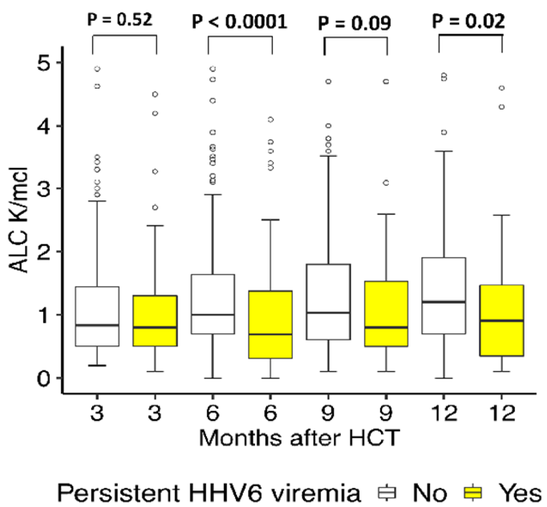
- Encephalitis: 1
- Pneumonitis: 4
- Organizing pneumonia: 2

Mismatched donor and CMV R- were predictors of persistent HHV-6 viremia in MV Cox model

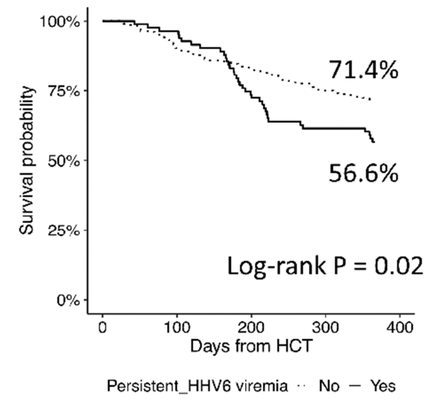


- Age, sex, underlying diseases, total body irradiation, donor type, recipient CMV serology, and GVHD were evaluated in the Cox proportional model. Significant results are shown.

Patients with persistent HHV-6 viremia had lower absolute lymphocyte count (ALC) at 1 year post-HCT



Persistent HHV-6 viremia was associated with decreased survival



Conclusions

- 27% of TCD HCT recipients developed persistent HHV-6 viremia.
- Mismatched donor and CMV R- were predictors for persistent HHV-6 viremia in MV Cox models (P=0.04 for both).
- 8% of patients with persistent HHV-6 viremia developed HHV-6 end-organ disease.
- Patients with persistent HHV-6 viremia had lower ALC and lower overall survival at 1-year post-HCT compared with patients without persistent HHV6 viremia (P=0.02 for both).

Corresponding author: Genovefa Papanicolaou
papanicg@mskcc.org
1275 York Ave, Box 9, New York, NY 10065

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