

Letemovir prophylaxis for cytomegalovirus is associated with risk of post-transplant lymphoproliferative disorders after haploidentical stem cell transplantation

Authors

Xu-Ying Pei,¹ Qiang Huang,^{2,3} Ling-Jie Luo,^{2,3} Hai-Lu Sun,¹ Jing Liu,¹ Yu-Qian Sun,¹ Xiao-Dong Mo,¹ Meng Lv,¹ Dai-Hong Liu,⁴ Hong-Yan Ma,² Yan-Wei Wu,² Lan-Ping Xu,¹ Yu Wang,¹ Xiao-Hui Zhang,¹ Liang Chen^{2,3} and Xiao-Jun Huang^{1,5}

¹Peking University People's Hospital, Peking University Institute of Hematology, National Clinical Research Center for Hematologic Disease, Beijing Key Laboratory of Hematopoietic Stem Cell Transplantation, Beijing; ²School of Medicine, Shanghai University, Shanghai; ³State Key Laboratory of New Targets Discovery and Drug Development for Major Diseases, Xi'an; ⁴The Fifth Medical Center of Chinese PLA General Hospital, Beijing and ⁵Peking-Tsinghua Center for Life Sciences, Beijing, China

Correspondence:

X.Y. HUANG - huangxiaojun@bjmu.edu.cn

<https://doi.org/10.3324/haematol.2024.286265>

Received: July 15, 2024.

Accepted: November 22, 2024

Early view: November 28, 2024.

©2025 Ferrata Storti Foundation

Published under a CC BY-NC license 

Supplementary Data

Table S1. Characteristics and outcomes of diagnosed cases of EBV associated post-transplant lymphoproliferative disorder.

No	Cohort	Group	Disease	Age	Gender	EBV Peak Titer (Copy/ml)	PTLD Diagnosed Day post-SCT	Clinical Manifestations	Type of EBV-PTLD	Tissue Pathological Type	Total Rituximab doses	Outcomes
1	Cohort 1	LMV	ALL	55	Female	2950	161	Fever, lymphadenopathy,	Probable	/	3	Survival
2	Cohort 1	LMV	MDS	41	Female	7820	63	Fever, lymphadenopathy, hepatosplenomegaly	Proven	Polymorphic PTLD	4	Survival
3	Cohort 1	LMV	ALL	59	Male	168000	44	Fever, lymphadenopathy,	Probable	/	4	Survival
4	Cohort 1	LMV	ALL	17	Male	61500	56	Fever, lymphadenopathy,	Proven	Polymorphic PTLD	3	Survival
5	Cohort 1	LMV	ALL	25	Female	10000	84	Fever, lymphadenopathy,	Proven	Polymorphic PTLD	3	Survival
6	Cohort 1	LMV	ALL	16	Female	7760	40	Fever, lymphadenopathy,	Proven	Polymorphic PTLD	3	Survival
7	Cohort 1	LMV	AML	56	Female	82300	70	Fever, lymphadenopathy,	Probable	/	6	Die at 169 day
8	Cohort 1	LMV	AML	53	Female	42900	53	Fever, lymphadenopathy,	Proven	Monomorphic PTLD (DLBCL)	4	Survival
9	Cohort 2	LMV	ALL	59	Female	2440000	60	Fever, lymphadenopathy, HLH	Proven	Monomorphic PTLD (DLBCL)	2	Die at 75 day

10	Cohort 2	LMV	AML	55	Male	842000	96	Fever, lymphadenopathy,	Proven	Monomorphic PTLD (DLBCL)	4	Survival
11	Cohort 2	LMV	AML	16	Female	11500	62	Fever, lymphadenopathy,	Probable	/	4	Survival
12	Cohort 2	LMV	AML	40	Female	31100	84	Fever, lymphadenopathy,	Proven	Polymorphic PTLD	4	Survival
13	Cohort 2	LMV	AML	16	Male	2180	64	Fever, lymphadenopathy,	Probable	/	2	Survival
14	Cohort 2	LMV	AML	67	Male	174000	59	Fever, lymphadenopathy, hepatosplenomegaly, HLH	Probable	/	3	Die at 62 day
15	Cohort 2	LMV	MDS	41	Male	338000	80	Fever, lymphadenopathy, hepatosplenomegaly, HLH	Proven	Polymorphic PTLD	4	Die at 181 day
16	Cohort 2	LMV	MDS	41	Female	35400	65	Fever, lymphadenopathy, intracranial space-occupying lesion	Proven	Monomorphic PTLD (DLBCL)	4	Die at 173 day
17	Cohort 2	LMV	MDS	62	Male	67200	37	Fever, lymphadenopathy,	Probable	/	3	Survival
18	Cohort 2	LMV	ALL	19	Male	23940	88	Fever, lymphadenopathy, hepatosplenomegaly	Proven	Polymorphic PTLD	2	Die at 101 day
19	Cohort 2	LMV	AA	17	Male	1380	87	Fever, lymphadenopathy,	Proven	Polymorphic PTLD	4	Survival
20	Cohort 2	LMV	AML	62	Male	41000	59	Fever, lymphadenopathy,	Probable	/	4	Survival

21	Cohort 2	LMV	AML	30	Female	24900	70	Fever, lymphadenopathy, hypoxemia	Probable	/	2	Survival
22	Cohort 2	LMV	ALL	62	Female	1210	67	Fever, lymphadenopathy,	Probable	/	2	Survival
23	Cohort 2	LMV	AML	56	Male	20300	69	Fever, lymphadenopathy,	Probable	/	4	Survival
24	Cohort 2	LMV	AA	44	Male	15300	151	Fever, lymphadenopathy, hepatosplenomegaly	Proven	Monomorphic PTLD (T-cell neoplasma)	6	Survival
25	Cohort 2	LMV	MDS	61	Male	51740	54	Fever, lymphadenopathy,	Proven	Polymorphic PTLD	4	Survival
26	Cohort 2	LMV	ALL	49	Male	5450	58	Fever, lymphadenopathy,	Proven	Polymorphic PTLD	4	Survival
27	Cohort 2	LMV	ALL	18	Male	74500	63	Fever, lymphadenopathy,	Proven	Polymorphic PTLD	4	Survival
28	Cohort 2	LMV	AA	47	Male	500000	37	Fever, lymphadenopathy, hepatosplenomegaly, HLH	Proven	Monomorphic PTLD (DLBCL)	4	Die at 66 day
29	Cohort 2	LMV	AA	34	Male	2390	37	Fever, lymphadenopathy,	Probable	/	2	Survival
30	Cohort 2	LMV	ALL	29	Female	14700	45	Fever, lymphadenopathy,	Probable	/	2	Survival
31	Cohort 2	LMV	AML	60	Female	18600	62	Fever, lymphadenopathy,	Probable	/	4	Survival
32	Cohort 1	No-LMV	AML	57	Female	6210	103	Fever, lymphadenopathy,	Probable	/	3	Survival

33	Cohort 1	No-L MV	MDS	59	Male	6690	88	Fever, lymphadenopathy,	Probable	/	2	Survival
34	Cohort 2	No-L MV	MDS	38	Male	6330	48	Fever, lymphadenopathy, hypoxemia	Probable	/	2	Survival
35	Cohort 2	No-L MV	AML	35	Male	28600	69	Fever, lymphadenopathy,	Probable	/	4	Survival
36	Cohort 2	No-L MV	ALL	30	Male	7350	67	Fever, lymphadenopathy, tonsillar masses	Proven	Polymorphic PTLD	4	Survival
37	Cohort 2	No-L MV	AML	38	Female	51100	54	Fever, lymphadenopathy,	Proven	Polymorphic PTLD	4	Survival
38	Cohort 2	No-L MV	AML	60	Female	20700	52	Fever, lymphadenopathy,	Probable	/	4	Die at 246 day
39	Cohort 2	No-L MV	AML	32	Female	4800	73	Fever, lymphadenopathy,	Probable	/	4	Die at 221 day

Abbreviations: SCT, stem cell transplantation; AML, acute myeloid leukemia; ALL, acute lymphoblastic leukemia; MDS, myelodysplastic syndrome; AA, aplastic anemia; EBV, Epstein-Barr virus; PTLD, post-transplant lymphoproliferative disorder; DLBCL, diffuse large B-cell lymphoma.

Supplementary Figures

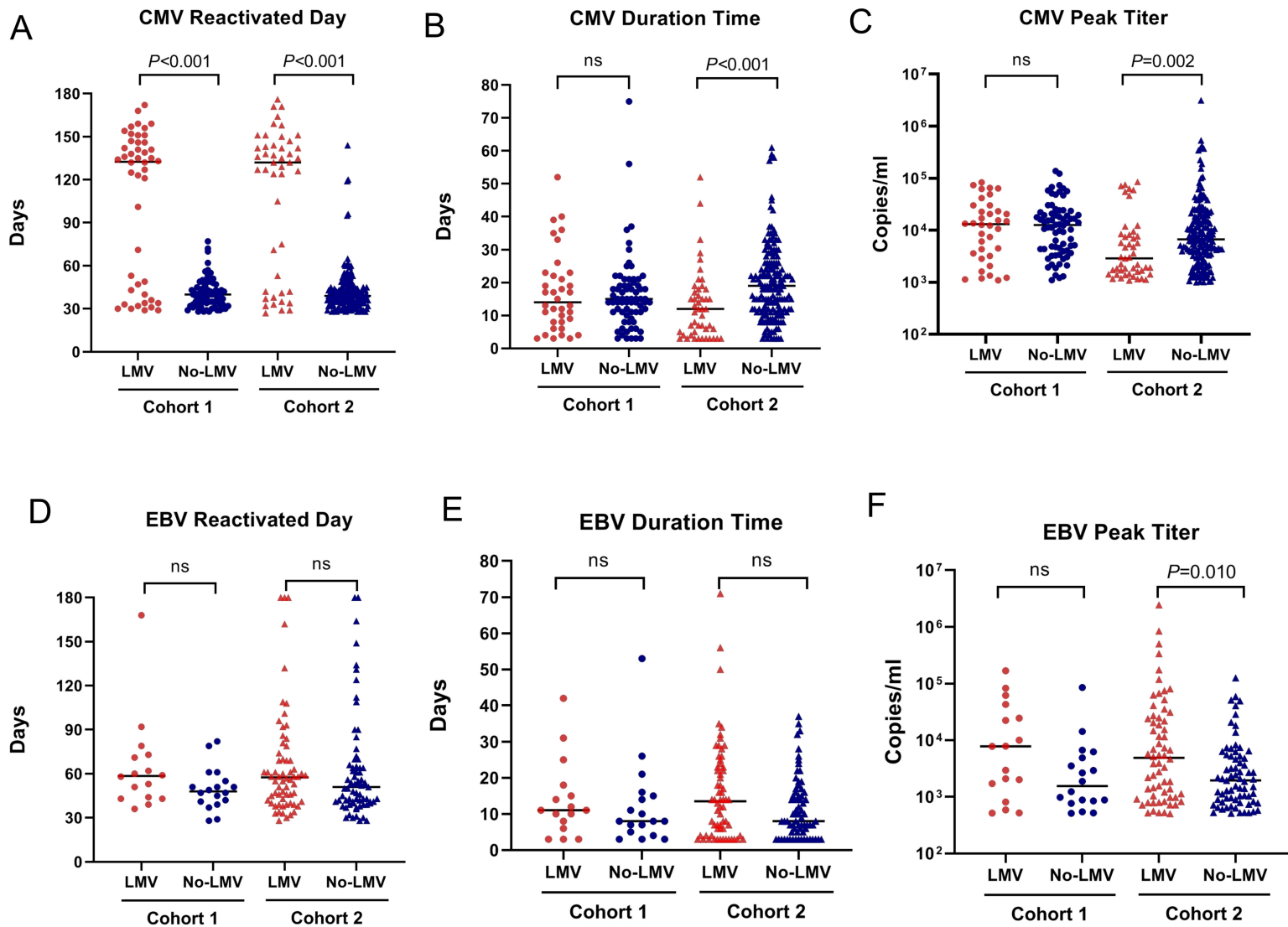


Figure S1. CMV and EBV infection. (A) CMV reactivated day, (B) CMV viremia duration time, (C) CMV peak titer, (D) EBV reactivated day, (E) EBV viremia duration time, (F) EBV peak titer. Abbreviations: CMV, cytomegalovirus; EBV, Epstein-Barr virus; LMV, letermovir.

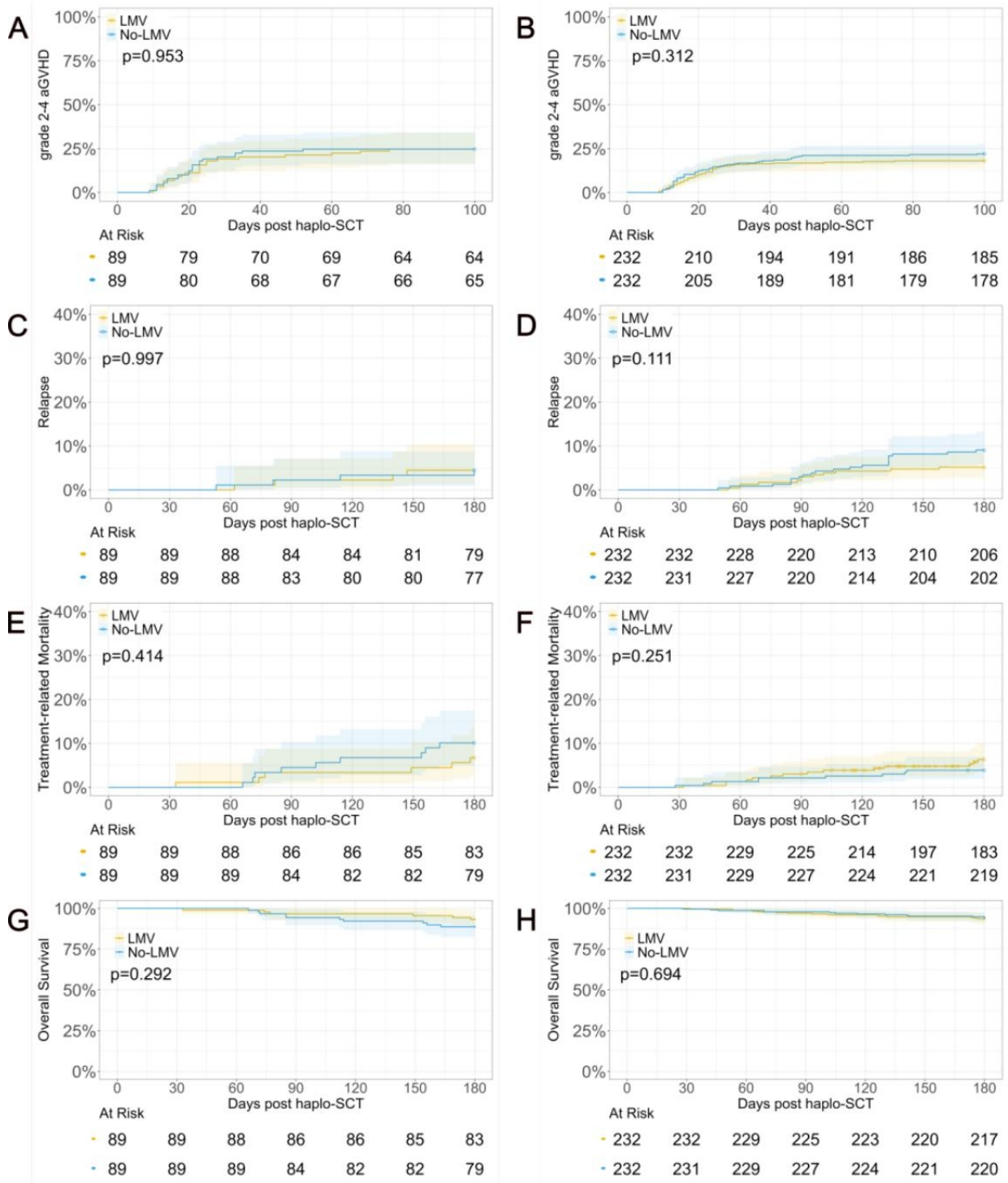


Figure S2. Transplant outcomes. Cumulative incidence of grade 2-4 aGVHD in Cohort 1 (A) and Cohort 2 (B), Relapse in Cohort 1 (C) and Cohort 2 (D), Treatment-related mortality in Cohort 1 (E) and Cohort 2 (F), Overall survival in Cohort 1 (G) and Cohort 2 (H). Abbreviations: aGVHD, acute graft-versus-host disease; TRM, treatment-related mortality; haplo-SCT, haploidentical stem cell transplantation.