# (PS2216) LETERMOVIR FOR CYTOMEGALOVIRUS PROPHYLAXIS AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION: THE RESULTS OF LETREAL STUDY.

**Topic:** 23. Stem cell transplantation - Clinical

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## Background

Letermovir is recommended for cytomegalovirus (CMV) prophylaxis after allogeneic hematopoietic stem cell transplantation (allo-HSCT), but its real-world effectiveness in patients receiving haploidentical related donor transplantation with antithymocyte globulin-based graft-versus-host disease (GVHD) prophylaxis remains inconclusive.

## Aims

Thus, in the present real-world study, we aimed to further confirm the efficacy of letermovir prophylaxis in a large allo-HSCT cohort (letermovir prophylaxis in the real-world study, LETreal study) in which many of them received HIDs HSCT with ATG-based protocol for GVHD prophylaxis. We also aimed to further confirmed the association between letermovir prophylaxis and EBV infection after allo-HSCT.

## Methods

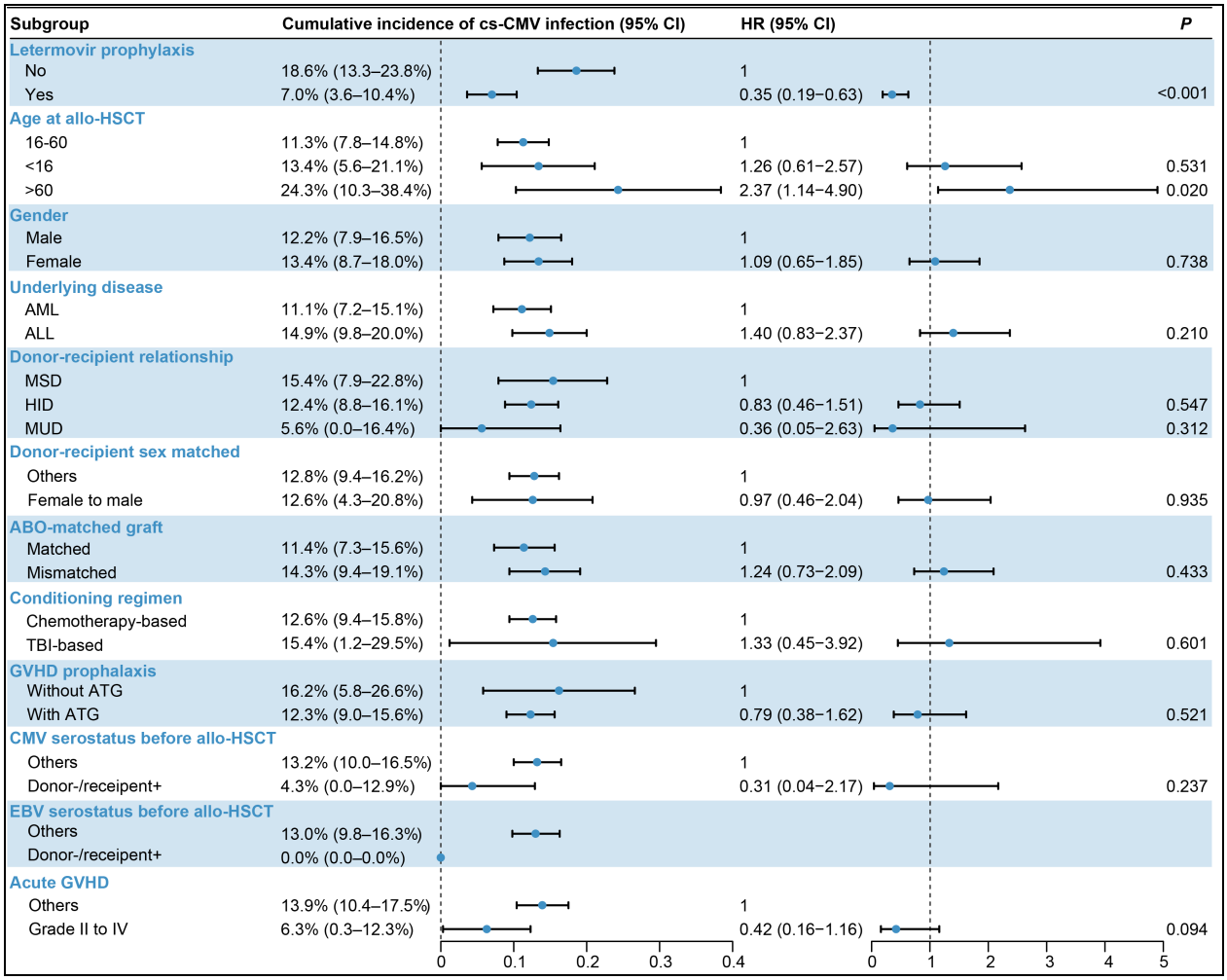
We enrolled 1331 acute leukemia patients receiving allo-HSCT in Institute of Hematology, Peking University from January 2023 to March 2025, including 978 who received letermovir prophylaxis. Among them, 254 patients continued letermovir prophylaxis beyond day 100 post-transplant (median time to discontinuation: 119 days). The primary outcome was cs-CMV infection at 100 days and cs-CMV infection between 100 to 200 days after transplantation. Propensity score matching (PSM) was applied to balance baseline characteristics, including age at allo-HSCT (<16 years vs. 16-60 years vs. > 60 years), gender (male vs. female), donor-recipient relationship (matched sibling donor vs. haploidentical related donor vs. matched unrelated donor), and GVHD prophylaxis (without ATG vs. ATG).

**Results**

Among patients receiving letermovir, the 100-day cumulative incidences of cs-CMV infection (Figure), CMV disease, and refractory CMV infection were 7.1%, 0.1%, and 2.0%, respectively. After propensity score matching, letermovir prophylaxis significantly reduced the 100-day cumulative incidence of cs-CMV infection (7.0% vs. 18.6%, P<0.001) and refractory CMV infection (1.4% vs. 7.0%, P=0.004) compared with no prophylaxis. Letermovir also decreased 100-day cumulative incidence of cs-CMV infection in patients with grade II-IV acute GVHD and those with grade III-IV aGVHD.
Donor-/recipient+ CMV serostatus and age >60 years were associated with a higher risk of cs-CMV infection between days 100 and 200 after allo-HSCT in patients receiving letermovir prophylaxis. After PSM adjustment, patients receiving extended letermovir prophylaxis beyond day 100 experienced comparable late-onset cs-CMV infection, CMV disease and refractory cs-CMV infection between days 100 and 200 after allo-HSCT compared with those without letermovir. For patients experienced chronic GVHD or those experienced moderate-to-severe chronic GVHD, the cumulative incidence of cs-CMV infection between days 100 and 200 was also comparable.
In addition, patients receiving letermovir prophylaxis had significantly higher 2-year cumulative incidences of cs-EBV infection ($P$<0.001) and EBV-post-transplant lymphoproliferative disorder ($P$=0.002) compared with no prophylaxis.
After PSM adjustment, the 2-year clinical outcomes (relapse, non-relapse mortality, leukemia-free survival and overall survival) were comparable among patients among without letermovir and those receiving letermovir prophylaxis.

**Summary/Conclusion**

In summary, we comprehensive present the effectiveness of letermovir prophylaxis through a large allo-HSCT cohort in the real world, and we also confirmed that letermovir prophylaxis increased the risk of cs-EBV infection and PTLD after allo-HSCT.




The comparison of cs-CMV infection at 100 days after allo-HSCT after PSM adjusted. Allo-HSCT, allogeneic hematopoietic stem cell transplantation; TBI, total body irradiation; MSD, matched sibling donor; HID, haploidentical related donor; MUD, matched unrelated donor; GVHD, graft-versus-host disease; ATG, antithymocyte globulin; CMV, cytomegalovirus; EBV, Epstein-Barr virus; HR, hazard ratio; 95% CI, 95% confidence interval.