(PS2416) INCORPORATION OF RITUXIMAB INTO CONDITIONING PREVENTS EBV INFECTION AFTER HAPLOIDENTICAL STEM CELL TRANSPLANTATION DURING THE ERA OF LETERMOVIR FOR CYTOMEGALOVIRUS PROPHYLAXIS

Topic: 31. Infections in hematology (incl. supportive care/therapy)

Xiaoning Wang*[1], Juan Ren[1], Huachao Zhu[1], Chunhong Sun[1], Pengcheng He[1]

[1]*the first affiliated hospital of xi'an jiaotong university, department of hematology, xi'an, China;*

Background

In the era of letermovir for cytomegalovirus (CMV) infection prophylaxis, several centers reported that Epstein-Barr virus (EBV) viremia and post-transplant lymphoproliferative disorders (PTLD) were significantly higher in patients who did not receive letermovir prophylaxis following rabbit anti-thymocyte globulin(rATG)-based haploidentical hematopoietic stem cell transplantation（haplo-HSCT）.There is an unmet need to find an effective strategy to prevent EBV infection.

Aims

To investigate the efficacy and safety of rituximab administration during conditioning regimen following haplo-HSCT in the prevention of early (within 100 days) post-transplant EBV infection.

Methods

We conducted a retrospective analysis of 100 patients with acute leukemia or myelodysplastic syndrome who underwent haplo-HSCT in the Department of Hematology, The First Affiliated Hospital of Xi'an Jiaotong University between January 2024 and September 2025. All patients used rATG-based graft-versus-host disease (GVHD) prophylaxis and letermovir for CMV infection prophylaxis post-transplantati on.Patients were divided into two groups: the observation group(R group), who received rituximab (375 mg/m²) on day -3 before transplantation due to the presence of donor-specific antibodies (MFI ≥ 2000) (n = 25) and the control group (C group), who did not receive rituximab (n = 75) and donor-specific antibodies (MFI < 2000). The primary objectives were the incidence of EBV-DNA viremia and PTLD within 100 days post-transplantation. Secondary objectives included the incidence of CMV infection, cumulative incidence of acute GVHD and chronic GVHD, 100-day non-relapse mortality (NRM), progression-free survival (PFS), and overall survival (OS).

Results

No significant differences were observed in baseline characteristics between the two groups. When compared with the C group, patients in the R group exhibited a significantly lower cumulative incidence of EBV viremia within 100 days post - transplantation (0% vs. 21.33%, P = 0.012) and a significantly lower incidence of grade I - IV acute GVHD (28% vs. 50.67%, P = 0.048). There were no significant differences in the incidence of PTLD (0% vs. 9.33%, P = 0.113), CMV viremia (4% vs. 15.38%, P = 0.208),chronic GVHD (16% vs. 12%, P = 0.607), and within 100 - day NRM (4.0% vs. 10.67%, P = 0.313). The 2-year OS rates in the R group and C group were 83.8% ± 0.086% and 81.9% ± 0.050% respectively (P = 0.662). The 2-year PFS rates in the R group and C group were 83.8% ± 0.086% and 72.6% ± 0.068% respectively (P = 0.876).

Summary/Conclusion

The addition of rituximab to the conditioning regimen for haplo - HSCT could effectively reduce the risk of early post - transplant EBV reactivation and decrease the incidence of acute GVHD, without exerting a significant influence on CMV reactivation, chronic GVHD, PFS, or OS. The combined use of rituximab during the conditioning regimen may be regarded as an effective strategy for preventing EBV reactivation after rATG - based haplo - HSCT in the era of letermovir for CMV prophylaxis.