(PB3998) TREOSULFAN-BASED REDUCED-INTENSITY CONDITIONING FOR ALLOGENEIC HCT IN OLDER AND HIGHLY COMORBID PATIENTS: A SINGLE-CENTER REAL-WORLD COHORT

Topic: 23. Stem cell transplantation - Clinical

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Background

Allogeneic hematopoietic stem cell transplantation (alloHCT) is the only potential curative treatment for patients. Nevertheless, older or comorbid alloHCT recipients are at greater risk for several alloHCT-related complications. Treosulfan has emerged as an optimal part of prior HCT conditioning regimens in this patient population.

Aims

Analyze the outcome of patients who underwent alloHCT with treosulfan-based conditioning for myeloid neoplasms.

Methods

We retrospectively analyzed the outcome of adult pts with myeloid neoplasms who underwent alloHCT with treosulfan-based conditioning from a matched or mismatched donor from June 2023 to December 2025 at the Hospital Universitario Central Asturias. The conditioning consisted of a combination of treosulfan 10g/m2 /day on days -6 to -4, fludarabine, 30mg/m2 /day on days -6 to -2. Survival outcomes were estimated using Kaplan–Meier methods.

Results

We included 34 patients, 23 (67.6%) were male with a median age of 68 years (range 48-75). Median follow-up was 573 days. Patient and transplant characteristics are listed in Table 1. Stem cell source was peripheral blood in all cases. The patients´ baseline diseases were: acute myeloblastic leukemia (41.2%), myelodysplastic syndrome (38.2%) and other myeloid neoplasms (20.6%). Nine from 14 AML patients (64.3%) had assigned as adverse genetic risk group at the 2022 ELN. Among 13 patients with MDS, 6 patients had scored as intermediate-1 IPSS-R, 6 as intermediate-2 and 1 as high-risk group.

The median time to neutrophil engraftment was 17.5 days (range 16–20.8), 18 days for platelet engraftment (range 14–22), significantly slower after haplo-HSCT (26 vs. 15 days; p=0.0001). Considering early toxicity, 11 of 34 patients (32-4%) suffered from mucositis (grade ≥2 in 14.7%) and 3 patients from SOS (8.8%). Eight of 34 patients (23.5%) developed acute GVHD (grade II-III, no one grade IV), and 23.5% (8 patients) had chronic GVHD of any grade (only 5 moderate-severe).

At day +100, 24 patients had achieved CR (70.6%), from whom 21 (87.5%) got MRD negative. Relapse occurred in 8 patients (23.5%) with a median of 77 days. Median OS was not reached and median PFS was 2.4 years; the 2-year OS was 67% and RFS was 59.9%. NRM was 14.7%. Main causes of death were disease relapse (4 patients), infections (1 patients), GVHD (2 patients) and other causes in remainder.

Fitness / Comorbidity	
HCT-CI > 2, n (%)	25 (73.5)
ECOG ≤ 2, n (%)	33 (97.1)
Diagnosis	
AML, n (%)	14 (41.2)
MDS, n (%)	13 (38.2)
Other myeloid neoplasms, n (%)	7 (20.6)
Donor type	
MRD, n (%)	10 (29.4)
MUD 10/10, n (%)	14 (41.2)
MMUD 9/10, n (%)	2 (5.9)
Haploidentical, n (%)	8 (23.5)
GVHD prophylaxis	
ATG + MTX + CNI, n (%)	23 (67.6)
PTCy + MMF + CNI, n (%)	9 (26.5)
Other, n (%)	2 (5.9)
CMV prophylaxis	
Letermovir, n (%)	14 (41.2)
Pre-transplant comorbidities and health conditions, %	
Pulmonary comorbidity, n (%)	9 (26.5)
Hepatic comorbidity, n (%)	4 (11.8)
Neurologic comorbidity, n (%)	1 (2.9)
Age > 60 with comorbidity, n (%)	10 (29.4)
Age > 70, n (%)	7 (20.6)
Second transplant, n (%)	3 (8.8)
Additional secondary reason present, n (%)	13 (38.2)

Summary/Conclusion

Our retrospective analysis suggests that a treosulfan-based RIC in an elderly and population with comorbidities is feasible, with an excellent engraftment rate and a limited early toxicity, GVHD and NRM. These data outline the patient profiles and practicaldrivers that most often led to treosulfan use in routine transplant care.