Conference Abstract A6

Allogeneic Hematopoietic Stem Cell Transplantation in Acute Myeloid Leukemia Among Elderly Patients

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Introduction

Allogeneic hematopoietic stem cell transplantation remains the only potentially curative approach for the majority of patients with acute myeloid leukemia, while the proportion of adverse biological variants of the disease increases with age. In recent years, advances in the optimization of transplantation techniques have expanded the upper age limit for candidates and improved survival outcomes in older patients. Against this background, it is relevant to assess the outcomes of allogeneic hematopoietic stem cell transplantation in patients aged 60 years and older compared with younger recipients.

Aim

To perform a comparative analysis of outcomes of allogeneic hematopoietic stem cell transplantation in first remission of acute myeloid leukemia between patient groups aged ≥60 years and <60 years.

Materials and Methods

This retrospective study included 379 consecutive adult patients who underwent allogeneic hematopoietic stem cell transplantation in first remission of acute myeloid leukemia at the R. M. Gorbacheva Institute from 2013 to 2024. The cohort was divided into two groups according to age (≥60 years and <60 years). The evaluated outcomes included the cumulative incidence of relapse, non-relapse mortality (nRM), overall survival (OS), and leukemia-free survival (LFS), calculated at two years of follow-up.

Results

When stratified by age, 30 patients were assigned to the ≥60-year group and 349 to the <60-year group. Comparative analysis showed that the ≥60-year group had a higher frequency of secondary acute myeloid leukemia (30% versus 12.6%; p = 0.03) and a statistical trend toward a higher frequency of measurable residual disease positivity (48.1% versus 28.6%; p = 0.057). The proportion of patients with a high comorbidity index was also significantly higher (50% versus 5.4%; p < 0.001). All patients aged ≥60 years received reduced-intensity conditioning regimens, whereas 14% of patients <60 years underwent myeloablative conditioning (p = 0.02). Detailed comparative characteristics of the groups are shown in Table 1.

The cumulative incidence of relapse was 24% (95% confidence interval [CI] 8.3–45) versus 14% (95% CI 10–18; p = 0.12), non-relapse mortality was 6.7% (95% CI 1.1–19) versus 12% (95% CI 8.5–15; p = 0.47), overall survival was 76.4% (95% CI 62.5–93.3) versus 78.1% (95% CI 73.7–82.7; p = 0.5), and leukemia-free survival was 69% (95% CI 51.8–91.8) versus 74.3% (95% CI 69.8–79.2; p = 0.5) in the ≥60- and <60-year groups, respectively.

Conclusions

Patients aged ≥60 years are characterized by a less favorable baseline profile at the time of allogeneic hematopoietic stem cell transplantation, including a higher frequency of secondary acute myeloid leukemia, measurable residual disease positivity, and more pronounced comorbidity. Consequently, reduced-intensity conditioning regimens are universally applied in this group. Nevertheless, key transplantation outcomes are comparable with those in patients <60 years. Thus, chronological age is becoming a less restrictive factor owing to modern approaches to peri-transplant management.

Table 1. Comparative characteristics of the groups

	<60 years	≥60 years	p
	n=349	n=30	
Median age, years (range)	37 (18-59)	63 (60-75)	<0,001
Sex, n (%) Female Male	 187 (53,6) 162 (46,4)	 18 (60,0) 12 (40,0)	0,6
Secondary acute myeloid leukemia, n (%) No Yes	 305 (87,4) 44 (12,6)	 21 (70,0) 9 (30,0)	0,03
Risk ELN 2022, n (%) Favorable Intermediate Adverse	 20 (5,8) 280 (80,2) 49 (14,0)	 0 (0,0) 27 (90,0) 3 (10,0)	0,44
Measurable residual disease status, n (%) Positive Negative	 220 (71,4) 88 (28,6)	 14 (51,9) 13 (48,1)	0,057
Simplified comorbidity index, n (%) 0-1 2-3 ≥4	 217 (62,2) 113 (32,4) 19 (5,4)	 1 (3,3) 14 (46,7) 15 (50)	<0,001
Donor type, n (%) 10/10 related 10/10 unrelated 9/10 unrelated Haploidentical	 66 (18,9) 131 (37,6) 86 (24,6) 66 (18,9)	 3 (10,0) 13 (43,4) 7 (23,3) 7 (23,3)	0,63
Conditioning regimen intensity, n (%) Myeloablative Reduced-intensity	 49 (14,0) 300 (86,0)	 0 (0,0) 30 (100,0)	0,02
Stem cell source, n (%) Mobilized peripheral blood stem cells Bone marrow	 273 (78,2) 76 (21,8)	 27 (90,0) 3 (10,0)	0,2