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732.ALLOGENEIC TRANSPLANTATION: DISEASE RESPONSE AND COMPARATIVE TREATMENT STUDIES

Bone Marrow Cellularity at Diagnosis Predicts Outcomes of Patients with Myelodysplastic Syndrome with Allogeneic Hematopoietic Stem Cell Transplantation

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Allogeneic hematopoietic stem cell transplantation (allo-HSCT) is the only known curative therapy for myelodysplastic syndromes (MDS). The decision of allo-HSCT depends on prognostic scoring models such as revised international prognostic scoring system (IPSS-R) which include cytogenetic abnormalities, cytopenia, and % of bone marrow (BM) blasts. Recently, the prognostic role of genomic profile in MDS patients is arising. However, it is hard to conduct the next generation sequencing to all MDS patients in the real-world. Therefore, we aimed to evaluate the prognostic impact of BM cellularity at diagnosis as a new clinical prognostic factor of MDS with allo-HSCT.

A total of 122 patients with MDS patients who underwent allo-HSCT between July 2009 to August 2022 in single center were analyzed retrospectively. Overall survival (OS) was analyzed using the Kaplan-Meier survival curves according to the BM cellularity at diagnosis. The potential prognostic parameters were evaluated for OS by uni-and multivariate cox-regression analysis.

All patients were eligible for allo-HSCT and median age of 61.5 years (range: 19-71). Median follow-up duration was 36.9 (IQR 17.6-72.4) months. The 3-year and 5-year OS were 60.1% (95% CI 51.6-69.0) and 52.5% (95% CI 42.8-61.3), respectively. IPSS-R risk group was classified as very low (6, 4.9%), low (15, 12.2%), intermediate (40, 32.8%), high (37, 30.3%) and very high (24, 19.7%). Seventeen patients (13.9%) had complex karyotype at diagnosis. Seventy-seven patients (63.1%) were treated with hypomethylating agents before allo-HSCT. Most patients (70, 57.4%) had less than 5% BM blasts at allo-HSCT. The majority (74, 60.7%) received reduced intensity conditioning.

OS significantly differed between patients with hypercellular BM and normo- to hypocellular BM at diagnosis by the log-rank test (P <0.001) (Figure 1). In multivariate analysis for OS, complex karyotype at diagnosis (P<0.001; HR 6.00; 95% CI 3.08-11.66), age (P=0.04; HR 1.03; 95% CI 1.00-1.06) and hypercellular BM at diagnosis (P=0.005; HR 2.16; 95% CI 1.26-3.72) were associated with worse outcome (Table 1).

In this study, we demonstrated the BM hypercellularity at diagnosis independently predicts the inferior outcome of MDS patients with allo-HSCT. Although further validation with a larger cohort would be needed, it could be helpful to decide the treatment strategy of transplantation eligible MDS patients.

Disclosures No relevant conflicts of interest to declare.

Figure 1. Overall Survival According to Bone Marrow Cellularity at Diagnosis

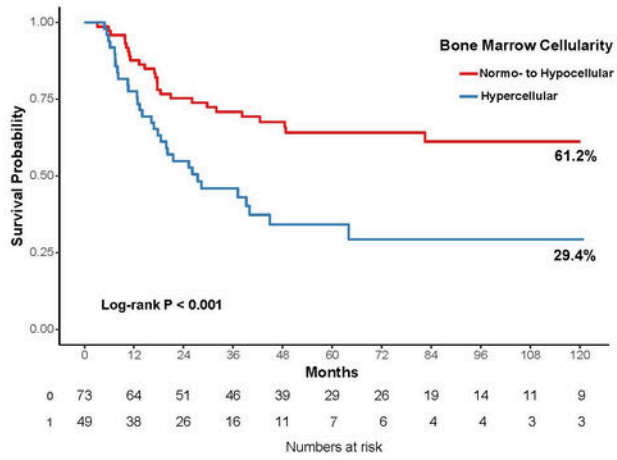

Table 1. Univariate and Multivariate Cox-proportional Hazard Regression Analyses Predicting OS

	OS			
	Univariate HR (95% CI)	*P* value	Multivariate HR (95% CI)	*P* value
Age	1.03 (1.00-1.07)	0.087	1.03 (1.00-1.06)	0.040
Sex	0.75 (0.39-1.47)	0.406		
Stem cell source: Reference = Matched sibling				
Matched unrelated	0.56 (0.29-1.10)	0.093		
Haploidentical	0.69 (0.29-1.62)	0.395		
Cord blood	0.42 (0.04-3.98)	0.447		
PLT<= 20,000/uL at diagnosis	1.08 (0.48-2.43)	0.851		
LDH > upper normal limit	1.10 (0.61-1.98)	0.761		
Splenomegaly at diagnosis	1.64 (0.85-3.17)	0.14		
Complex karyotype	6.05 (2.91-12.58)	<0.001	6.00 (3.08-11.66)	<0.001
Use of ATG	3.61 (1.02-12.73)	0.046	2.60 (0.87-7.80)	0.087
Conditioning (MAC vs RIC)	1.07 (0.53-2.16)	0.855		
Blasts <5% at allo-HSCT	1.37 (0.73-2.60)	0.328		
Hypercellular BM at diagnosis	1.97 (1.1-3.54)	0.023	2.16 (1.26-3.72)	0.005

OS, overall survival; PLT, platelet; ATG, anti-thymoglobulin; MAC, myeloablative conditioning; RIC, reduced intensity conditioning; LDH, lactate dehydrogenase; HSCT, hematopoietic stem cell transplantation; BM, bone marrow

Figure 1

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