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652.MULTIPLE MYELOMA: CLINICAL AND EPIDEMIOLOGICAL

Identification of Clinical-Biological Features of Newly Diagnosed Early Relapse Multiple Myeloma Patients Eligible for Autologous Stem Cell Transplantation

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Despite many therapeutics advances, Multiple Myeloma (MM) remains an incurable hematological malignancy with a cohort of patients who relapse early or does not respond to first-line therapy, including autologous stem cell transplantation (ASCT). The proportion of patients with early relapse is stable over time at about 30% and they have a median Overall Survival (OS) less than 3 years. Consequently, clinical and/or biological features that identify patient at high risk for early relapse at diagnosis represent a critical unmet medical need.

With the aim of identify possible factors of early relapse (ER), we conducted a retrospective, observational, single center study on a cohort of 74 MM patients who received an upfront ASCT between 2011 and 2021 after a novel agent-based induction at the Hematological and BMT Unit of the University Hospital of Parma (Italy). The primary end point of the study was the assessment of possible predictive markers for ER, defined as progressive disease that occurred within 18 months from the time of ASCT. Clinical, biochemical and cytogenetics features of the cohort of MM patients were evaluated (Table 1). Definitions of response and progression were used according to the International Myeloma Working Group (IMWG) response criteria. All statistical analyses were done by SPSS Statistics. The characteristics of cohorts were summarized using the median value for continuous variates and the frequency for categorical ones. The Pearson chi-square test and Student t-test were used to identify differences between groups for categorical and continuous variables, respectively. Kaplan-Meier Curve with log-rank test were used to analyze survival data. The bivariate logistic analysis was conducted to recognize independent factors predicting ER, subsequently Cox regression analysis was performed to confirm the validity of multivariate analysis for survival data.

The cohort characteristics were summarized in table 1. Among the 74 MM patients included in the study, a total of 19 patients (25.5) experienced ER, with mean time to relapse of 15.6 (18.0) months. Univariate statistical analysis identified as possible predictive markers for early relapse at diagnosis: IgA MM ($p < 0.05$), elevated serum LDH level ($p < 0.05$), C-CRAB criteria ($p < 0.05$), high risk cytogenetic aberrations ($p < 0.05$), stage R-ISS III ($p < 0.001$) and stage R2-ISS III or IV ($p < 0.001$). Multivariate statistical analysis confirmed IgA isotype ($p < 0.05$) and higher stage according to R2-ISS ($p < 0.001$) as effectively independent predictive risk factors for ER. Time-to-event analysis displayed a mean progression free survival (PFS) from transplant of 24.7 (16.0) months and 32.5 (19.0) months for those with IgA MM and stage R2-ISS III or IV, respectively. In the group of patients with IgA isotype the mean OS from transplant was 49.5 (30.0) months, while the mean OS from diagnosis was 58.0 (35.0) months without statistically significant differences compared to counterpart. In the group of patients with stage R2-ISS III or IV the mean OS from transplant was 48.2 (41.0) months, while the mean OS from diagnosis was 56.5 (49.0) months. Finally, in ER cohort the mean OS from diagnosis was 47.1 (35.0) in comparison with the 75.0 (71.0) months of non-ER cohort.

In conclusion, this retrospective study was able to identify the main features of newly diagnosed early relapsed MM patients eligible to ASCT identifying the IgA isotype and the R2-ISS score system as the main predictive prognostic factors for early relapse in this cohort of patients.

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Table 1 – Cohort's characteristics.

	General Population 74 (100)	ER Cohort 19 (25.5)	Non-ER Cohort 55 (74.5)	P value
Age, mean (SD[1])	57.0 (7.7)	57.0 (9.5)	57.6 (7,0)	.81
Male Sex, n (%)	43.0 (58.1)	12.0 (63.2)	31.0 (56.4)	.65
IgA Isotype, n (%)	13.0 (24.0)	7.0 (43.8)	5.0 (12.8)	< .05
Elevated LDH, n (%)	11.0 (14.8)	6.0 (31.6)	5.0 (9.1)	< .05
Hypercalcemia, n (%)	9.0 (12.1)	5.0 (26.3)	4.0 (7.3)	< .05
High Risk FISH, n (%)	11.0 (14.8)	6.0 (31.6)	5.0 (9.1)	< .05
Stage R-ISS III, n (%)	13.0 (17.5)	8.0 (42.1)	5.0 (9.1)	< .001
Stage R2-ISS III-IV, n (%)	28.0 (37.8)	17.0 (89.5)	21.0 (38.2)	< .001
Pis[2] + IMiDs[3] based-Induction, n (%)	67.0 (90.5)	18.0 (94.7)	49.0 (89.0)	.46
Standard dose conditioning, n (%)	51.0 (69.0)	14.0 (73.6)	37.0 (67.2)	.60
PFS-transplant, mean (median)	40.8 (32.0)	15.6 (18.0)	55.5 (48.0)	< .001
OS-diagnosis, mean (median)	67.8 (59.0)	47.0 (35.0)	75.0 (71.0)	< .001

SD[1] = Standard Deviation; Pis[2] = Proteasome Inhibitors; IMiDs[3] = Immunomodulatory.

Figure 1

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