Risk of Therapy-Related Myeloid and Lymphoid Neoplasms in Patients with Multiple Myeloma: Multicenter Retrospective Analysis using TrinetX Database

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Introduction

Therapy-related myeloid neoplasms and lymphoid neoplasms (t-MN and t-LN) are of growing importance for patients with multiple myeloma (MM).

Aim

We aim to study the risk of t-MN and t-LNs in patients with MM exposed to melphalan and/or lenalidomide.

Methods

We conducted a multicenter retrospective study using the TrinetX database, including adult patients with a history of MM. All MM patients were included in the analysis and were divided into three groups: 1) MM with only lenalidomide arm, 2) MM with only melphalan arm, and 3) MM with lenalidomide plus melphalan arm. Outcomes of interest were the incidence of newly diagnosed t-MN and t-LN in these MM patients who had exposure to the above therapies.

Results

A total of 15,529 patients (2,494 in the melphalan group, 2,010 in melphalan plus lenalidomide, and 11,025 in the lenalidomide group) were identified. All patients who received at least one dose of radiation, cyclophosphamide, and other alkylating agents are excluded from the final analysis.

Table 2: Outcome analysis

	MM with Melphalan (n=1788)	MM with Len plus Mel (n=1788)	MM with Len alone exposure (n=1788)
Median follow up	32.0	47.2	38.7
T-MN/t-LN	20 (1.2)	36 (2.0)	35 (1.9)
3-year incidence rates	1.02%	1.91%	1.78%

Conclusions

This population-level, multicenter, large database study demonstrated a higher incidence of t-MN/t-LN with lenalidomide compared with melphalan.

Table 1: Baseline characteristics

	MM with only Mel exposure (n=2494) (%)	MM with both Len and Mel exposure (n=2010) (%)	MM with only Len exposure (n=11,025) (%)
Mean age	70.2 (±11.0)	68.8 (±10.0)	73.9 (±10.8)
Sex			
Females	1111 (44.5)	871 (43.3)	4891 (44.3)
Males	1383 (55.5)	1139 (56.7)	6134 (55.6)
Race			
Whites	1382(55.4)	1439 (71.6)	7180 (65.1)
Exposure			
Daratumumab	54 (2)	193 (10)	148 (1)
Bortezomib	174 (7)	774 (39)	953 (9)
Carfilzomib	16 (1)	101 (5)	70 (1)

PSM: Propensity score matched; Baseline characteristics like age, sex, race, and comorbidities, the impact of prior exposure was included in propensity score matching and logistic regression analysis. Mel: Melphalan; Len: Lenalidomide.

Comparative risks of t-MN/t-LN with Lenalidomide vs Melphalan plus Lenalidomide exposure

The odds of developing t-MN/t-LN in patients with Lenalidomide exposure are 1.7 (95% CI: 1.01-3.1) as compared to Melphalan alone. Further, the odds of developing t-MN/t-LN in patients with both Lenalidomide and Melphalan exposure are also 1.7 (95%CI: 1.03-3.1) compared with Melphalan alone.

References

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