ELSEVIER

Blood 142 (2023) 7362–7363

The 65th ASH Annual Meeting Abstracts

ONLINE PUBLICATION ONLY

905.OUTCOMES RESEARCH-LYMPHOID MALIGNANCIES

Real-World Clinical Outcomes Among Triple-Class Exposed Multiple Myeloma Patients and Subgroups in the US Oncology Network

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Introduction:
Despite the development of advanced treatment options, multiple myeloma (MM) remains an incurable disease. Most MM patients ultimately relapse and require further treatments. MM patients who are triple class exposed (TCE) to immunomodulatory drugs (IMiDs), proteasome inhibitors (PIs), and anti-CD38 monoclonal antibodies have particularly poor outcomes and reduced probability to transition to a next therapy option. In the past few years, several novel therapies including Chimeric Antigen Receptor T-cell (CAR-T) therapies and bispecific antibody therapies became available for TCE patients in the later line setting. Using latest data, this study aims to characterize MM patients treated in US Oncology Network, who were TCE with at least 4 prior lines of therapy (4+ prior LOTs), and to describe their characteristics, treatment patterns, and clinical outcomes. Because treatment history such as penta-drug exposure status (at least two PIs, at least two IMiDs, and at least one anti-CD38) and patient characteristics such as race (White and African American) are known to impact disease outcomes, the impact of these subgroups on treatment to discontinuation or death (TTD) and time to next treatment or death (TTNT) were also evaluated.

Methods:
Patients with MM who were TCE with 4+ prior LOTs were identified retrospectively from the iKnowMed (iKM) oncology EMR database of the US Oncology Network. Those eligible initiated the next line of therapy (index date) from July 3, 2019 (when additional new treatment options became available) through April 3, 2023, and were followed to the earliest of death, last activity, or end of the study period. Clinical outcomes including TTD and TTNT were analyzed and estimated using the Kaplan-Meier method.

Results:
A total of 561 TCE patients with 4+ prior LOTs were included in the study, including 95 (16.9%) African American, 387 (69.0%) White, and 310 (55.3%) patients who were penta-drug exposed before index. Key demographic and clinical characteristics are listed in Table 1. The mean (SD) number of prior lines of therapy for the overall TCE & 4+ prior LOTs MM patients before index date was 4.6 (1.2). Prior to the index date, most patients were exposed to daratumumab (99.8%), lenalidomide (95.4%), bortezomib (93.2%), pomalidomide (77.7%), and carfilzomib (61.9%). Excluding corticosteroids, the most common index treatments were pomalidomide- (34.4%), daratumumab- (32.2%), and carfilzomib- (29.1%) based regimens. The most frequently used therapy were triplets (55.1%), followed by doublets (29.3%) and quadruplets (11.9%). CAR-T therapies were not captured in the data, and only 3 patients received bispecific antibody therapy.
The estimated median (95% CI) TTD and TTNT in months for the overall TCE with 4+ prior LOTs MM patients were 4.2 (3.9, 5.1) and 6.5 (5.5, 7.4), respectively. TTD and TTNT estimates for the three subgroups are listed in Table 2.

Conclusions:
This study demonstrates there are limited effective treatment options for heavily treated MM patients in the US Oncology Network. Novel therapies have not been widely used. Clinical outcomes in these patients remain poor, as demonstrated by the short TTD and TTNT. More than half of the patients in the study were penta-drug exposed, a subgroup that showed even worse clinical outcomes than the overall patient group. Racial disparity was also observed, with African American patients appearing

to have shorter TTD and TTNT than White patients. The findings highlight the continued need for effective treatments for heavily treated MM patients, including those with demonstrated particularly poor outcomes. Studies investigating innovative therapies to improve the outcomes for these patients are in process.

Disclosures Rifkin: *Fresenius-Kabi:* Consultancy, Membership on an entity's Board of Directors or advisory committees; *Amgen:* Consultancy, Membership on an entity's Board of Directors or advisory committees; *Takeda:* Consultancy, Membership on an entity's Board of Directors or advisory committees; *BMS:* Consultancy, Membership on an entity's Board of Directors or advisory committees; *Coherus:* Membership on an entity's Board of Directors or advisory committees; *McKesson - Biosimilar Medical Director:* Current Employment, Current equity holder in publicly-traded company; *Sanofi:* Membership on an entity's Board of Directors or advisory committees. **Harper:** *Johnson & Johnson:* Current Employment, Current equity holder in publicly-traded company, Patents & Royalties: patent application under review. **Le:** *Johnson & Johnson:* Current Employment, Current equity holder in publicly-traded company. **Fu:** *Johnson & Johnson:* Current Employment, Current equity holder in publicly-traded company. **Patel:** *Johnson & Johnson:* Current Employment, Current equity holder in publicly-traded company, Current holder of *stock options* in a privately-held company. **Zhang:** *Johnson & Johnson:* Current Employment, Current equity holder in publicly-traded company.

Table 1. Patient characteristics at the baseline

	Overall TCE & 4+ prior LOTs	Penta-drug exposed	African American	White
Patient Count N (% of the overall)	561 (100.0%)	310 (55.3%)	95 (16.9%)	387 (69.0%)
Age at index date in years				
-Mean (SD)	69.1 (9.9)	68.1 (10.1)	67.7 (10.0)	69.8 (9.6)
-Median	70.0	69.0	68.0	71.0
Sex, N (%)				
-Female	280 (49.9%)	159 (51.3%)	52 (54.7%)	189 (48.8%)
-Male	281 (50.1%)	151 (48.7%)	43 (45.3%)	198 (51.2%)
Time from first observed MM diagnosis date to index date in months				
-Mean (SD)	80.4 (49.6)	79.9 (49.3)	74.3 (48.8)	82.7 (49.8)
-Median	70.0	69.9	62.0	72.1
Number of prior LOTs before index				
-Mean (SD)	4.6 (1.2)	4.9 (1.4)	4.6 (1.3)	4.7 (1.2)
-Median	4.0	4.0	4.0	4.0
Prior Stem Cell Transplant, N (%)	147 (26.2)	98 (31.6%)	21 (22.1%)	113 (29.2%)

Table 2. Time to Treatment Discontinuation/Death and Time to Next Treatment/Death

	Overall TCE & 4+ prior LOTs	Penta-drug exposed	African American	White
Patient Count N (% of the overall)	561 (100.0%)	310 (55.3%)	95 (16.9%)	387 (69.0%)
TTD, in months Median (95% CI)	4.2 (3.9, 5.1)	3.7 (3.2, 4.2)	3.9 (3.0, 6.0)	4.6 (3.9, 5.5)
TTNT, in months Median (95% CI)	6.5 (5.5, 7.4)	5.5 (4.4, 6.9)	5.8 (3.9, 8.3)	7.1 (6.0, 8.4)

TTD: Time to treatment discontinuation or death; TTNT: Time to next treatment or death

Figure 1

https://doi.org/10.1182/blood-2023-186616