Current Real-World Treatment Patterns and Outcomes in Patients With Relapsed/Refractory Multiple Myeloma

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Introduction

- Since 2013, several new agents with novel mechanisms of action have been approved for relapsed/refractory multiple myeloma (RRMM), including new-generation immunomodulatory drugs (IMiDs).
- Current treatment options include combinations of newer agents with existing standard of care regimens, as well as triplet and quadruplet regimens.
- National Comprehensive Cancer Network treatment guidelines recommend bortezomib (BTD), lenalidomide (LEN), and dexamethasone (DEX) for frontline therapy (LT) of both transplant and non-transplant candidates. Guideline recommendations following LT include consideration of triplet regimens, allowing physicians to select the regimen deemed most appropriate for a given patient.
- Limited real-world data exist to describe current utilization, treatment patterns, and clinical outcomes of the different treatments for RRMM.

Objective

- To assess treatment patterns and outcomes of patients with RRMM who received ≥2 lines of therapy from 2011 to 2017 using electronic medical records (EMRs) and charts from US community oncology practices.

Methods

Study design

- A comprehensive electronic chart review using data from the International Oncology Network (ION) practices and the ION EMR data warehouse.
- Patients (n=1013) were identified through programmatic queries of standardized elements within structured fields available through the ION EMR management software.

- Exclusion criteria included:
  - Diagnosis of multiple myeloma (MM) in an International Classification of Disease, 9th and 10th Revision, Clinical Modification code.
  - Receipt of LT treatment regimens.
  - ≥40 years of age at initiation of LT.
  - No evidence of an active primary malignant cancer during the study period.
  - ≥60 days of follow-up after initiation of LT treatment.

- Of the patients who started ≥2 LTs, charts that were readily available were reviewed alongside the database analysis to maximize the completeness and robustness of study results.

- Patients were excluded if they had:
  - MTD that was not being activity investigated (confirmed within physician notes).
  - Diagnosis or treatment with a known or other malignancy.
  - Diagnosis of any other malignancy.

- Patients were stratified into older versus younger treatment cohorts based on whether the patients were using each treatment line were approved preceding 2012 versus 2012 or later.

Outcome measures

- Outcome measures assessed included:
  - Baseline demographic and clinical characteristics.
  - Treatment patterns (including type of treatment, length of treatment-line intervals, and regimens with a particular therapy).
  - Adverse events (AEs).
  - Median real-world progression-free survival (PFS).

- A change in treatment line was defined as a change in regimen due to progression and not due to toxicity or other reasons.

Data analysis

- Patient data were examined from the date of initiation of LT for MM until death, loss to follow-up, or study end date, whichever was earliest.

- This study was hypothesis generating, thus no statistical tests were performed; descriptive statistics are used throughout.

Results

Patients

- Of the 1013 charts reviewed, 495 patients met study criteria and were included in the analysis.

- The most common reasons for exclusion were diagnosis/treatment outside of the ION networks (n=413) and non-MM diagnosis (n=98) during the study period (n=98).

- The median age at diagnosis was 70.4 years, 30.5% of patients were female, and 66.0% were African American (Table 1).

- International Stage C (I) patients were diagnosed 1 month of diagnosis was in 28.7%, 1 in 27.9%, and in 43.4% of patients with a known stage (Table 1).

- In total, 183 (36%) patients received ≥3 LTs, 75 (16.4%) received ≥4 LTs, and 29 (6.4%) had ≥5 LTs.

- Median (mean) time on treatment decreased from 7.5 (10.7) months in LT1 to ≥3.2 (3.7) months in LT2 and 2.5 (2.9) months in LT3 (Figure 1).

- The most common reason for discontinuation was disease progression and drug toxicity. Other reasons included death and adverse events.

- Adverse events

- Newer treatment approaches were typically associated with higher incidences of AEs compared to older agents.

Conclusions

- While BTD and LEN were predominantly used in LT1 and LT2, substantial heterogeneity was seen in LT3, highlighting the lack of defined treatment pathway for these patients.

- BTD and LEN were often used as reinduction after LT, with around half of previously treated patients receiving these in combination or as a single agent again in later lines.

- As expected, treatments in LT3 and beyond offered shorter benefits as the disease progressed; median time on treatment and PFS decreased with increasing treatment lines.

- Fatigue, anemia, and bone pain were the three most frequent AEs across all lines of treatment.

- Median PFS and OS with newer agents in ≥3 LT ranged from 2.9 to 4.9 months and 6.3 months to 15.4 months, respectively, this is slightly lower than that observed in recent clinical trials of novel agents such as pan-panobinostat and daratumumab.

- While these remain a need to replicate these results within a larger dataset where statistical comparisons can be made and confounding factors controlled for, a trend for improved PFS and OS outcomes with more recently approved treatments was suggested, particularly when compared across lines of treatment.

References


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