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Characteristics and Treatment Patterns of Medicare Beneficiaries with Triple-Class Exposed Relapsed/Refractory Multiple Myeloma

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Objective

To describe the real-world characteristics and treatment patterns of Medicare beneficiaries with triple-class exposed relapsed or refractory multiple myeloma.

Conclusions

- Treatment options for Medicare patients with TCE RRMM are limited with many not receiving cancer treatment.
- Patients rapidly cycled through treatments with short median DOT highlighting the high level of unmet need for new treatments.
- Drug and drug-class combinations were highly variable (97 unique drug combinations observed in TCE1), indicating no clear standard of care.
- Many patients received agents that were part of prior treatment regimens; few patients advanced to TCE2 or TCE3.
- Further research is needed to understand treatment selection for older patients with TCE RRMM.

Introduction

- Multiple myeloma (MM) is a malignant neoplasm that accounts for approximately 15% of hematologic cancers and is most frequently diagnosed among individuals aged 65 to 74 years.[1]
- Patients with MM typically relapse or become refractory (RR) to multiple classes of treatment over the course of their disease.[2] Patients treated with three classes (proteasome inhibitors [PI], immunomodulatory drugs [IMiD], anti-CD38 monoclonal antibodies [mAb]) are considered triple-class exposed (TCE) have limited treatment options and poor prognosis.[3,4]
- This study describes the patient characteristics and real-world treatment patterns of Medicare beneficiaries with TCE RRMM.

Materials and Methods

- A retrospective observational study was implemented using CMS-sourced 100% Medicare Fee-for-Service (FFS) Parts A/B/D claims and enrollment data from January 1, 2015 to December 31, 2019. FFS includes ~62% of all Medicare enrollees.[5]
- Study cohort included Medicare beneficiaries with ≥1 RRMM diagnosis (ICD-10 diagnosis code C90.00 or C90.02) between January 1, 2016 and June 30, 2019, who were age 65+ at diagnosis, TCE, and had continuous enrollment ≥12 months pre- and ≥6 months post-diagnosis (or death). Patients were followed until FFS disenrollment, end of the study period, or death.
- Patients were considered TCE once they were exposed to ≥1 PI, ≥1 IMiD, and ≥1 anti-CD38, in any order. They were included in the analytic sample after initiating any other non-steroidal MM medication. The first subsequent regimen was TCE1, the second TCE2, and the third TCE3.
- Duration of therapy (DOT) and time to next treatment (TTNT) were measured from initiation of TCE1 and TCE2until initiation of subsequent regimen, gap in treatment ≥60 days, or end of follow up. The most frequently occurring TCE1 and TCE2 regimens were described.

Results

BASELINE CHARACTERISTICS

- During the study period, 5,395 Medicare beneficiaries with RRMM were TCE; 1,672 (31%) initiated TCE1, 297 (6%) initiated TCE2, and <1% initiated TCE3.
- **Table 1** describes characteristics of TCE1 patients.

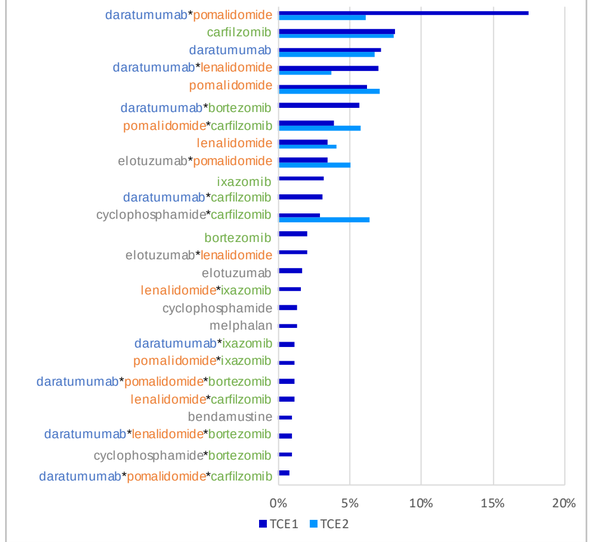
Table 1. Patient Demographic and Clinical Characteristics of Medicare Beneficiaries with TCE RRMM Who Initiated TCE1

Characteristic	TCE RRMM Patients Initiating TCE1
Unique Patients	1,672
Mean (SD) age at Regimen Start (reported in years)	75.6 (5.2)
Female, n (%)	845 (51%)
Race, n (%)	
Non-Hispanic White	1,401 (84%)
Black/African American	160 (9%)
Other/Unknown Races*	111 (7%)
Age as Original Reason for Medicare Entitlement, n (%)	1,483 (89%)
Dual Eligible for Medicare + Medicaid, n (%)	163 (10%)
Mean (SD) Charlson Comorbidity Score	4.4 (3.3)
Most Prevalent Charlson Comorbidities**, n (%)	
Diabetes without complication	468 (28%)
Renal disease	463 (28%)
Chronic pulmonary disease	427 (26%)
Peripheral vascular disease	260 (16%)
Diabetes with chronic complication	192 (11%)
Mean (SD) Duration of Follow up (reported in days)	354.2 (331.4)

*Category includes: Asian/Pacific Islander, American Indian/Alaskan Native, Hispanic/Latino, multi-racial, and unknown
**Reported 5 most common comorbidities
Note: Charlson Comorbidity Score and most common comorbidities did not include malignancy or metastatic disease

TREATMENT PATTERNS

Figure 1. Most Frequently Prescribed TCE1 and TCE2 Regimens in Medicare Beneficiaries with TCE RRMM



Note: Use of steroid-only treatment regimens was not evaluated
Agents listed are color-coded by treatment class: Anti-CD38: blue; IMiD: orange; PI: green; Other class: grey
Regimens prescribed to <11 patients not reported
TCE1 regimens shown represent 89.5% of TCE1 patients; TCE2 regimens represent 52.9% of patients

TREATMENT PATTERNS (continued)

- 97 unique drug combinations were observed in TCE1; many patients received agents/regimens that were part of prior treatment.
- The most commonly prescribed TCE1 and TCE2 regimens are captured in **Figure 1**.
- Median DOT was 3.3 months for TCE1 and 2.8 months for TCE2; DOT declined with each subsequent regimen (**Table 2**).
- Median TTNT for both TCE1 and TCE2 patients was >4 months (**Table 2**).
- Primary reason for TCE1 end was treatment discontinuation (40.0%); 41.3% of study patients died during the study period.

Table 2. Duration of Treatment and Time to Next Treatment in Medicare Beneficiaries with TCE RRMM (Unadjusted)

		TCE1 (N = 1,672)	TCE2 (N = 297)
DOT	Mean (SD) Days	161.7 (171.6)	133.2 (150.7)
	Median Days	100.0	84.0
TTNT	Mean (SD) Days	177.1 (153.9)	244.0 (209.3)
	Median Days	131.0	139.0

DOT: duration of therapy; number of days on each TCE regimen, measured from the regimen start date until treatment switch, discontinuation, or end of study period.
TTNT: time to next treatment; number of days from the initiation of each TCE regimen until initiation of subsequent treatment regimen, among those with a subsequent regimen. Censoring events: death, disenrollment, or end of study period.

STUDY LIMITATIONS

- Analysis utilized administrative claims data and is subject to misclassification.
- Reason for treatment discontinuation or no treatment was not captured in the data.
- Data stream ended December 2019 and did not capture more recent treatments approved for use in RRMM.

References: 1. "Key Statistics About Multiple Myeloma." *American Cancer Society,* 26 January 2021, https://www.cancer.org/cancer/multiple-myeloma/about/key-statistics.html **2.** Lee, Shah, Orlowski. "Novel approaches to treatment of double-refractory multiple myeloma." *Am Soc Clin Oncol Educ Book* (2014): 302-306. **3.** Mikhael. "Treatment options for triple-class refractory multiple myeloma." Clin Lymphoma Myeloma Leuk 20.1(2020): 1-7. **4.** Fakhri B, Fiala MA, Tuchman SA, Wildes TM. Undertreatment of Older Patients With Newly Diagnosed Multiple Myeloma in the Era of Novel Therapies. Clin Lymphoma Myeloma Leuk. 2018;18(3):219-224. doi:10.1016/j.clml.2018.01.005 **5.** KFF analysis of CMS Medicare enrollment files.

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