Real-world Costs and Health Care Resource Utilization Among Patients With Triple-Class Exposed Relapsed/Refractory Multiple Myeloma in the US

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INTRODUCTION

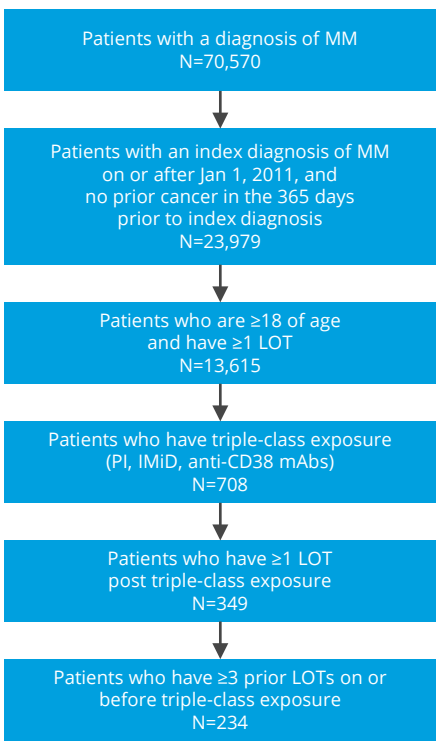
- Despite recent advancements in treatments, multiple myeloma (MM) remains an incurable disease and patients are at persistent risk of relapsing or becoming refractory to therapies[1-3]
- Patients with relapsed or refractory MM (RRMM) often cycle through multiple treatments, including 3 of the most commonly used classes of therapy (ie, proteasome inhibitors [PIs], immunomodulatory drugs [IMiDs], and anti-CD38 monoclonal antibodies [mAbs]), which may result in increased costs and healthcare resource utilization (HCRU)[4]
- Here, we analyze real-world costs and HCRU in patients with triple-class exposed (TCE) RRMM

METHODS

Data sources

- Data were extracted from the Optum Clinformatics Data Mart database for the period from January 1, 2010, to December 31, 2020
- Inclusion criteria are shown in **Figure 1**

FIGURE 1: Selection of patients for the retrospective analysis



LOT, line of therapy.

Assessments

- Demographics and baseline characteristics were evaluated for all patients
  - Comorbidities were scored per the Charlson Comorbidity Index (CCI); increasing CCI score reflects increasing mortality risk
  - The presence of the most common Elixhauser comorbidities (based on diagnosis codes) was also assessed
- Mean per-patient per-month (PPPM) costs from the first LOT post triple-class exposure to loss to follow-up (LTFU) were calculated
- HCRU including outpatient visits, hospitalizations, emergency room (ER) visits, and lab visits was also assessed

Statistical analyses

- Descriptive statistics are reported for all analyzed data

MULTIPLE MYELOMA

RESULTS

Patient demographics and baseline characteristics

- Clinical characteristics and demographics of the 234 patients analyzed are shown in **Table 1**
- Median (interquartile range [IQR]) time from start of the first LOT post triple-class exposure to LTFU was 6 (2–12) months

TABLE 1: Demographics and baseline characteristics

Variable	N=234	Variable	N=234
Age at index date, years		Refractory status, n (%)	
Mean (SD)	71.5 (9.43)	Penta-refractory[a]	9 (3.8)
Median (IQR)	73 (64–78)	Triple-refractory[b]	49 (20.9)
Female sex, n (%)	121 (51.7)	CCI score, n (%)	
SCT (before index date), n (%)	82 (35.0)	0	16 (6.8)
		1	31 (13.2)
Time from index MM diagnosis to index date, months		≥2	187 (80.0)
Mean (SD)	36.3 (20.95)	Median (IQR)	4 (2–7)
Median (IQR)	33 (21–46)	Elixhauser comorbidities, n (%)	
Number of prior LOTs, n (%)		Hypertension	185 (79.1)
3	112 (47.9)	Fluid and electrolyte disorders	150 (64.1)
4	71 (30.3)	Renal failure	117 (50.0)
5+	51 (21.8)	Coagulopathy	109 (46.6)
		Cardiac arrhythmia	97 (41.5)

[a]At least 2 IMiDs, 2 PIs, and 1 anti-CD38 mAb. [b]At least 1 IMiD, 1 PI, and 1 anti-CD38 mAb. SCT, stem cell transplant.

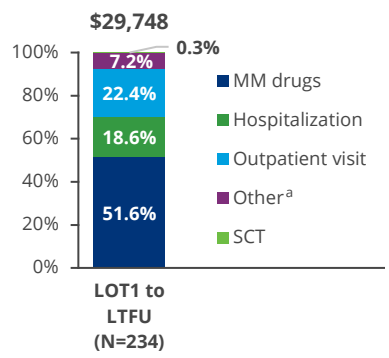
Treatment patterns

- The most common treatments post triple-class exposure included regimens that were daratumumab-containing (59.8%), pomalidomide-containing (37.2%), carfilzomib-containing (22.2%), and bortezomib-containing (20.5%)
- The most frequently used regimens included triplets (48.3%), followed by doublets (19.7%), monotherapy (17.9%), and quadruplets (14.1%)
  - The combination of daratumumab, pomalidomide, and dexamethasone (12.0%) was the most commonly used treatment regimen

Costs and HCRU

- PPPM costs incurred from first LOT post triple-class exposure until LTFU are shown in **Figure 2** and **Table 2**
- PPPM, patients had a mean of 5.4 outpatient visits, 0.3 hospitalizations, 0.3 ER visits, and 2.5 lab visits (**Figure 3, Table 3**)
- Among patients with ≥1 hospitalization, median (IQR) length of hospitalization was 1.1 (0.4–3.2) days during the first LOT post triple-class exposure and 1.3 (0.6–2.7) days through end of follow-up

FIGURE 2: Mean PPPM costs incurred from initiation of first LOT post triple-class exposure to LTFU



[a]Other costs include costs of ER visits, lab visits, and other drug costs.
LOT1, first line of therapy post triple-class exposure.

TABLE 2: Median PPPM costs incurred from initiation of first LOT post triple-class exposure to LTFU

Variable	N=234 Median (IQR)
Duration of follow-up, days	165 (72–323)
Overall cost	$28,258 ($17,936–$37,419)
MM cost	$14,755 ($8622–$19,225)
MM drug cost	$14,755 ($8235–$19,225)
SCT cost	$0 ($0–$0)
Inpatient cost	$1747 ($0–$7861)
Outpatient visits cost	$4629 ($2864–$8158)
Other cost[a]	$1189 ($640–$2764)

[a]Other costs include costs of ER visits, lab visits, and other drug costs.

FIGURE 3: Mean HCRU

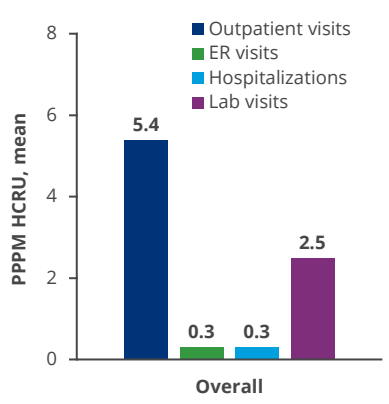


TABLE 3: HCRU

HCRU	Variable	N=234
Outpatient visits	Patients with ≥1 outpatient visit, n (%)	222 (94.9)
	Outpatient visits PPPM, median (IQR)	4.7 (3.3–7.0)
Hospital stays	Patients with ≥1 hospitalization, n (%)	142 (60.7)
	Inpatient stay PPPM, median (IQR)	0.2 (0.0–0.3)
ER visits	Patients with ≥1 ER visit, n (%)	147 (62.8)
	ER visits PPPM, median (IQR)	0.2 (0.0–0.4)
Lab visits	Patients with ≥1 visit, n (%)	218 (93.2)
	Lab visits PPPM, median (IQR)	2.2 (1.5–3.5)

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KEY TAKEAWAY

TCE RRMM is associated with substantial costs, driven by HCRU and drug costs, suggesting the need for novel treatments that can improve disease management and reduce the economic burden of RRMM

CONCLUSIONS

Patients with TCE RRMM incur high costs that could be mitigated with earlier effective treatments with novel mechanisms of action

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DISCLOSURES

AC served in a consulting or advisory role for AbbVie, Amgen, Antengene, Bristol-Myers Squibb, Celgene, Genentech, GlaxoSmithKline, Genzyme, Janssen Oncology, Karyopharm Therapeutics, Oncopeptides, Seattle Genetics, Secura Bio, Shattuck Labs, and Takeda, and received research funding from Amgen, Celgene, Janssen, Pharmacyclics, Seattle Genetics, and Takeda. **SN, XL, MS,** and **AM** are employees of Janssen. **RP** is an employee of Smart Analyst, Inc, which was commissioned by Janssen to conduct the study. **SK** served in a consulting or advisory role for AbbVie, Amgen, Bluebird Bio, Celgene, Cellectar, Genecentric, Genentech, Janssen Oncology, Kite, Merck, Molecular Partners, Oncopeptides, and Takeda.

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