Prevalent Comorbidities and Disease-Related Conditions in Heavily Pretreated Patients With Multiple Myeloma: A Real-World Retrospective Database Analysis

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BACKGROUND

- Multiple myeloma (MM) is a hematological malignancy characterized by extensive patient heterogeneity and requires individualized treatment strategies[1,2]
- Despite rapid advances in treatment, MM remains incurable, with varying outcomes among patients[1,3,4]
- Studies have suggested that comorbidities have substantial impacts on treatment outcomes in patients with MM and may serve as prognostic indicators[5,6]
- Identifying the most prevalent diagnoses in patients with MM will help inform optimal patient care and guide future research

OBJECTIVE

- This study aimed to describe the most prevalent comorbidities and disease-related conditions experienced in heavily pretreated patients with MM

METHODS

Study design and data source

- This was a retrospective analysis using payer claims data from the Healthcare Integrated Research Database® (HIRD) from the study period (January 1, 2006, to March 31, 2023)

Study population

- Patients with ≥2 medical claims for MM diagnosis (ICD-9-CM 203.00, ICD-10-CM C90.00) during the study period who met the below criteria were included
  - ≥12 months of continuous health plan enrollment without any MM treatment before the first MM diagnosis (washout period to identify the first MM diagnosis and the initiation of the first line of therapy [LOT])
  - Received treatment for MM after the first MM diagnosis
  - Received at least the 5th line of therapy (5L or later) during the patient identification period (January 1, 2016, to September 30, 2022)
  - Became triple-class exposed (TCE, defined as having received a proteasome inhibitor, an immunomodulatory agent, and an anti-CD38 monoclonal antibody)
- Patients were indexed on the initiation of the earliest LOT (5L or later) between January 1, 2016, and September 30, 2022, after becoming TCE
  - Patients were ≥18 years old as of the index date and had continuous health plan enrollment during the 12 months before the index date and ≥6 months after the index date

Data analysis

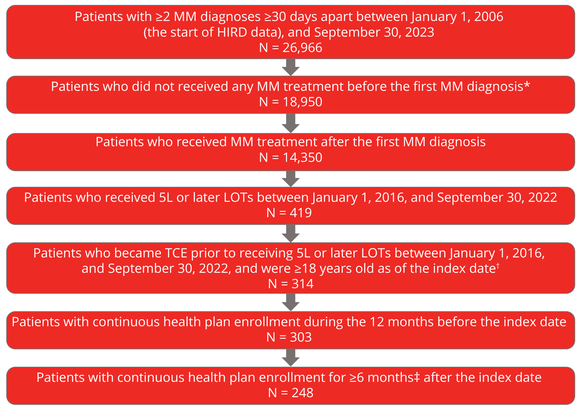
- The top prevalent diagnoses, separated by comorbidities and MM-related conditions, were described during the 12-month continuous enrollment period before the index date using the Clinical Classifications Software Refined (CCSR) categories[7]

RESULTS

Patient characteristics

- A total of 248 patients met the selection criteria and were included in the analysis (**Figure 1**). The median age was 64.0 years, with 17.3% of patients being ≥75 years old; 52.4% of patients were male, and 70.9% were non-Hispanic White (**Table 1**)
- The majority of the patients (84.7%) had commercial insurance, and the patient population was evenly distributed across US regions (**Table 1**)
- Among patients with Eastern Cooperative Oncology Group performance status (ECOG PS) data (n = 157), 13.4% had an ECOG PS ≥2. The median (IQR) Quan–Charlson Comorbidity Index (excluding MM) score was 2.0 (0.8–4.0)

FIGURE 1: Patient attrition



HIRD, Healthcare Integrated Research Database®; LOT, line of therapy; MM, multiple myeloma; TCE, triple-class exposed.
*A washout period (≥12) months before the first MM diagnosis was used to exclude patients with a prior diagnosis of MM or prior use of MM treatment
†Patients who met the study criteria were indexed on the initiation of the 5L or earliest of later LOTs.
‡Patients who died within 6 months from the index date were required to have continuous health plan enrollment between the index date and the first day of the month of death.

Comorbidities and disease-related conditions

- The most prevalent CCSR comorbidities included hypertension (62.5%), dyslipidemia (40.7%), chronic kidney disease (31.1%), osteoarthritis (27.0%), type 2 diabetes (26.6%), thyroid disorders (24.6%), and cardiac dysrhythmias (21.4%) (**Figure 2**)
- The most prevalent MM-related conditions included musculoskeletal pain (64.5%), anemia (57.7%), malaise and fatigue (52.0%), fluid and electrolyte disorders (46.8%), immunity disorders (39.1%), polyneuropathies (36.7%), and nausea and vomiting (29.0%) (**Figure 3**)

TABLE 1: Baseline patient characteristics (n = 248)

Patient demographics	
Median age, years (IQR)	64.0 (57.8–72.0)
Age categories, n (%)	
<65 years	127 (51.2)
≥65 to <75 years	78 (31.5)
≥75 years	43 (17.3)
Sex, n (%)	
Male	130 (52.4)
Female	118 (47.6)
Race and ethnicity, n (%)[a]	
Non-Hispanic White	139 (70.9)
Non-Hispanic Black or African American	28 (14.3)
Hispanic or Latino	18 (9.2)
Asian	7 (3.6)
Other	≤5
Insurance type, n (%)	
Commercial	210 (84.7)
Medicare	38 (15.3)
Geographic region, n (%)[b]	
West	83 (34.3)
Midwest	56 (23.1)
South	55 (22.7)
Northeast	48 (19.8)
Clinical characteristics	
ECOG PS, n (%)[c]	
0	67 (42.7)
1	69 (43.9)
2	17 (10.8)
≥3	≤5
QCI (excluding MM)	
Mean (SD)	2.7 (2.9)
Median IQR	2.0 (0.8–4.0)

ECOG PS, Eastern Cooperative Oncology Group performance status; IQR, interquartile range; QCI, Quan–Charlson Comorbidity Index.
[a]of 196 patients with data available.
[b]of 242 patients with data available.
[c]of 157 patients with data available.

FIGURE 2: Prevalent comorbidities in study patient population

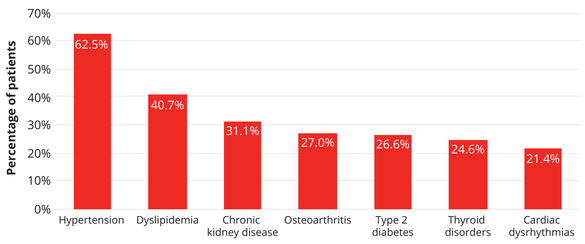
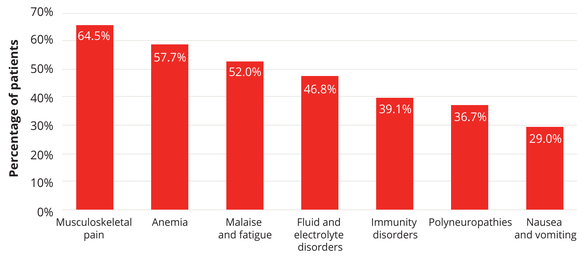


FIGURE 3: Prevalent multiple myeloma-related conditions in study patients



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LIMITATIONS

This study has limitations associated with claims data. For example, it used a claims-based algorithm to determine the number of lines of treatment patients had received, which might have excluded patients who switched health plans during the disease journey and therefore did not have at least 5 LOTs in the database. Furthermore, it only included patients who had US commercial health plans (or Medicare Advantage) and available clinic data, which limited the generalizability of the findings. Additionally, claims-based capture of certain comorbidities and myeloma related conditions has a potential for measurement errors or underreporting, and therefore should be interpreted with caution

CONCLUSIONS

This study systematically summarized the fundamental epidemiology data on prevalent comorbidities and disease-related conditions experienced in a heavily pretreated population with MM

Patients with heavily pretreated MM experience substantial comorbidities and disease-related conditions, indicating a high unmet need and underscoring the importance of evaluating comorbidities when treating MM

The results will inform future research for more MM-specific baseline characteristics reporting to reduce confounding biases and support care management to improve patient outcomes

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DISCLOSURES
DL, NK, JF, EM, and BW are employees of Johnson & Johnson and may hold stocks or stock options of Johnson & Johnson. RD, JB, HT, and SV are employees of Carelon Research, which is a consultancy whose activities on research projects are funded by various life sciences companies and health plans. CN was an employee of Carelon Research during the conduct of the study. FA is an employee of Panalgo. SG receives honoraria from CareVive, OncLive, and Sanofi and is an employee of the University of Alabama at Birmingham, which receives research funding from Carevive Systems, PackHealth, Sanofi, and Janssen Oncology.

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