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Real-World Patient Profile and Step-Up Dosing Process of Early Initiators of Teclistamab for Multiple Myeloma in a Hospital Setting in the US – A Premier Healthcare Database Study

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INTRODUCTION

- Multiple myeloma (MM) is an incurable plasma cell malignancy. Almost all patients with MM will eventually relapse, become refractory to available therapies, and require new treatment strategies[1,2]
- The treatment landscape of relapsed/refractory multiple myeloma (RRMM) has evolved with the introduction of targeted therapies such as proteasome inhibitors (PIs), monoclonal antibodies, and immunotherapies, including B-cell maturation antigen (BCMA)-targeted therapies.[3] Nonetheless, patients with RRMM demonstrate high unmet need due to poor prognosis and limited treatment options[4]
- Teclistamab, a first-in-class bispecific BCMA-directed CD3 T-cell engager with a personalized, weight-based dosing schedule, was recently approved by the US FDA on October 25, 2022, for the treatment of adult patients with RRMM who have received at least 4 prior lines of therapy, including a PI, an immunomodulatory agent, and an anti-CD38 monoclonal antibody[5]
- Teclistamab is initiated with a step-up dosing (SUD) schedule (2 step-up doses and one initial treatment dose)[6]
- Understanding patient characteristics and the SUD process of early initiators of teclistamab in the real-world setting is important since they may differ from clinical trial participants

OBJECTIVE

- To describe the profile and SUD schedule of patients with MM who initiated teclistamab in the first 4 months of US market availability in a real-world hospital setting

METHODS

- This real-world, retrospective, observational study used the Premier Healthcare Database, an all-payer US hospital chargemaster database containing inpatient and outpatient visits from nonprofit, nongovernmental, community, and teaching hospitals and health systems. The database represents 1 in 5 inpatient hospital stays in the US from more than 600 acute-care hospitals

Study Population

- Adult patients (≥18 years of age) with MM who received ≥1 teclistamab administration in a US hospital within the Premier Healthcare network between November 1, 2022, and March 1, 2023, were included in this study. Patients enrolled in clinical trials were excluded

Cohort Identification

- Patients who met the following criteria were defined as with a complete SUD period:
  - Had dosage data available
  - Received a 30 mg/3 mL vial; the date of the hospital encounter for the first 30 mg/3 mL vial was considered the first dose of the SUD period and used as index
  - Subsequently received a 153 mg/1.7 mL vial between 1 and 7 days following a prior 30 mg/3mL vial; the first 153 mg/1.7 mL vial was considered the last dose of the SUD period
- Patients who did not meet the above criteria were considered as having an incomplete SUD period

Data Analysis

- All variables were analyzed descriptively
- Mean and standard deviation (SD) and median (Q1-Q3) were reported for continuous variables, and numbers and percentages were reported for categorical variables
- Patient characteristics were analyzed across all patients, and SUD patterns were evaluated in only those with a complete SUD period

MULTIPLE MYELOMA

RESULTS

TABLE 1. Demographics and Clinical Characteristics of Patients With MM Treated With Teclistamab in a Hospital Setting (n=40)

Patient Demographics	
Age (years), median (Q1-Q3)	69.5 (58-74)
Age categories, n (%)	
<65 years	17 (42.5)
65 to <70 years	3 (7.5)
70 to <75 years	12 (30.0)
≥75 years	8 (20.0)
Sex, n (%)	
Male	25 (62.5)
Female	15 (37.5)
Race, n (%)	
White	26 (65.0)
Black	7 (17.5)
Asian	3 (7.5)
Other	4 (10.0)
Ethnicity, n (%)	
Hispanic	5 (12.5)
Non-Hispanic	31 (77.5)
Unknown	4 (10.0)
Payer type, n (%)	
Medicare	29 (72.5)
Medicaid	3 (7.5)
Commercial	3 (7.5)
Managed care	3 (7.5)
Other	2 (5.0)
Clinical Characteristics	
Select documented conditions at index hospital encounter, n (%)	
Anemia	23 (57.5)
Hypertension	21 (52.5)
Peripheral neuropathy	12 (30.0)
Renal disease	10 (25.0)
Headaches/migraines	8 (20.0)
Osteoporosis	8 (20.0)
Hypercalcemia	3 (7.5)
Neutropenia	5 (12.5)
Hypogammaglobulinemia	4 (10.0)

Demographics

- Among 40 patients with a hospital encounter containing ≥1 teclistamab administration between November 1, 2022, to March 1, 2023, the median (Q1-Q3) age was 69.5 (58-74) years, and 72.5% had Medicare insurance (**Table 1**)
- The majority of the patients were male (62.5%) and non-Hispanic (77.5%). Most patients were White (65.0%); 17.5% were Black and 7.5% were Asian
- All patients had been treated in urban hospitals, with 85.0% in teaching hospitals and 87.5% in hospitals with ≥300 beds (**Table 2**)

Clinical Characteristics

- At index hospital encounter, 57.5% of patients had anemia documentation, 30.0% had peripheral neuropathy, 25.0% had renal disease, and 12.5% had neutropenia (**Table 1**)

TABLE 2. Index Hospital Encounter Containing ≥1 Teclistamab Administration Characteristics (n=40)

Hospital Type	
Teaching status, n (%)	
Yes	34 (85.0)
No	6 (15.0)
Urbanicity, n (%)	
Urban	40 (100)
Rural	0 (0)
US region, n (%)	
Northeast	7 (17.5)
Midwest	15 (37.5)
South	6 (15.0)
West	12 (30.0)
Size (number of beds), n (%)	
0-99	0 (0)
100-199	5 (12.5)
200-299	0 (0)
≥300	35 (87.5)

Abbreviations: US, United States.

Teclistamab SUD Patterns

- Among 27 patients with dosage information, 18 (66.7%) had a complete SUD period, with all doses administered in a single inpatient admission
- A total of 11 patients (61.1%) started teclistamab on day 1 of admission
- One patient started teclistamab on day 7 with length of stay (LOS) of 14 days and one patient started on day 22 with LOS of 32 days
- Omitting these two outliers, the total mean (SD) LOS was 8.3 (1.3) days
- A 3-day interval (61.1%) or 2-day interval (11.1%) was used between doses during the SUD in most patients

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CONCLUSIONS

- This is the first national real-world study of a small cohort of early initiators of teclistamab during the first 4 months of market availability from a large, nationally representative all-payer US hospital-based data
- We observed that early users of teclistamab were older adults and diverse with significant comorbidities and that most of the patients completed SUD as scheduled without delay

- Patients were mostly treated in large academic hospitals in urban areas, and may not be generalizable to all patients receiving teclistamab
- As information on discharged patients are not captured in the database if and when they visit an out-of-network hospital, data such as comorbidities are likely underreported and detailed MM disease characteristics could not be captured

- Given that teclistamab was approved only recently, the sample size of this study is small, and the study period is short. More patients with longer follow-up are needed to update the data for future studies as real-world profiles and treatment patterns of teclistamab users may evolve over time

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