P992

Teclistamab Step-Up Dosing and Less Frequent Dosing Schedule in the Real-World Setting – An Analysis of Multicenter Electronic Medical Records

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Conclusions

MajesTEC-1, with > 2 years of follow-up, demonstrated deep and durable responses for patients who switched to Q2W dosing after sustained CR

Despite a more difficult to treat real-world patient population than MajesTEC-1

- Most patients completed the teclistamab SUD per approved US label; dosing on days 1,3,5 was most common
- Early data on RW TTNT was promising in these patients

In real-world settings, switching to less frequent dosing (e.g. Q2W) was observed in some patients (median time to switch of 8.5 months). Future research with longer follow-up is needed

Limitations

This study has limitations associated with real-world EMR data. Some patients may be referred from community practices to academic centers for SUD only, and therefore the database may not have the patients' full treatment history, resulting in potential under-reporting of prior BCMA use or certain comorbidities. Most patients in this study received teclistamab in US academic centers, which limited the generalizability of the findings. Certain important prognostic factors, such as ECOG or ISS, were not available in this EMR database

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Poster

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Introduction

- Teclistamab, the first B-cell maturation antigen (BCMA) x CD3 bispecific antibody for relapsed/refractory multiple myeloma (MM), was approved with personalized weight-based dosing. The approved schedule includes a step-up dosing (SUD) phase followed by once-weekly (QW) or every-other-week (Q2W) dosing for patients who achieve and maintain a complete response or better[1,2]
- Switching from QW to less frequent dosing (e.g., Q2W) was allowed in the pivotal MajesTEC-1 trial. With the longest follow-up of any bispecific antibody in MM, teclistamab continues to demonstrate deep and durable responses and reduced grade ≥3 infections over time, including in patients who switched to less frequent dosing[3]
- Since the initial FDA approval, many institutions have implemented various teclistamab SUD models to reduce healthcare utilization while ensuring patient safety[4,5]
- This study aimed to describe (1) teclistamab SUD and subsequent dosing patterns, including less frequent dosing schedule (i.e., switching from weekly to Q2W) and (2) time to the next treatment (TTNT) or death (as proxies for disease progression) after teclistamab initiation in a real-world setting

Methods

Study design and data source

- This was a real-world retrospective observational study of patients treated with teclistamab for MM using Acentrus electronic medical records (EMR) structured data from 31 academic or community hospitals across 14 states in the United States

Patient population and cohort identification

- This study included patients treated with teclistamab between October 26, 2022 (the day after FDA approval of teclistamab), and November 30, 2023. Patients were included in the analysis if they met all the criteria below (**FIGURE 1**):
  - Had ≥1 record for teclistamab on or after October 26, 2022; date of the first teclistamab dose was defined as the index date
  - Had ≥1 encounter with MM diagnosis prior to or on the index date
  - Were ≥18 years of age on the index date
  - Did not receive teclistamab in a clinical trial and were not enrolled in a clinical trial on the index date
- Treatment patterns were analyzed in a subgroup of patients meeting the following additional criteria:
  - Had completed SUD confirmed by corresponding strengths per label
  - Had ≥1 cycle of teclistamab (≥28 days) post-index

Data analysis

- This is a descriptive analysis. Patient characteristics were captured during the 6 months before the index date (defined as the baseline period). Prior exposure to BCMA therapies was captured anytime before the index date where data were available
- SUD schedule was described among patients with complete SUD (defined as having received the 2 step-up doses and the first full treatment dose [i.e., the first 3 doses])
- Less frequent dosing schedule and TTNT or death were evaluated in a subset of patients with ≥1 cycle of teclistamab use (≥28 days) after the index date using Kaplan-Meier survival analyses
- For the analysis of less frequent dosing schedule, patients were censored at the earliest date of the following: death, last activity, end of the study, treatment discontinuation (defined as the date of the last dose +7 days before the earliest 90-day gap), or the initiation of a next line of therapy (LOT). For the analysis of TTNT or death, patients were censored at the earliest of the last activity date or the end of the study, with either initiating a new LOT or death being considered as an event
- Switching to less frequent dosing schedule was defined as having ≥3 consecutive teclistamab records, starting the day after the first cycle of teclistamab use, with a dose interval ≥14 day (Q2W) or 28 days (Q4W) between each dose

Results

Figure 1: Patient attrition

Patient baseline characteristics

- As of data cut-off, 247 eligible patients were identified and included in the study. The median age (range) of these patients was 69 (41-89 years); 54.2% of patients were male. Among patients with available race and ethnicity data, 75.8% were White and 90.9% were non-Hispanic. More than half (59.4%) of the patients had Medicare insurance, and almost all (98.8%) were treated at academic hospitals (**TABLE 1**)
- Prevalent baseline diagnoses included anemia (51.0%), hypertension (44.5%), and renal impairment/failure (40.5%)
- Baseline lytic bone lesions (25.1%), hypogammaglobulinemia (15.8%), and extramedullary plasmacytomas (5.7%) were observed
- Prior BCMA therapies were observed in 19.4% of patients, including 10.9% treated with BCMA-directed CAR-T and 1 patient with another bispecific antibody (**TABLE 1**)

Table 1: Baseline patient characteristics (N = 247)

Patient demographics (on the index date)	
Age, years, mean (SD)	68.3 (10.0)
Age, years, median (range)	69 (41-89)
Age categories, years, n (%)	
<55	26 (10.5)
≥55 to <65	57 (23.1)
≥65 to <75	92 (37.2)
≥75	72 (29.2)
Sex, n (%)	
Male	134 (54.2)
Female	111 (44.9)
Other	2 (<1)
Race, n (%) of 182 patients with data available	
White	138 (75.8)
Black or African American	23 (12.6)
Asian	21 (11.5)
Ethnicity, n (%) of 175 patients with data available	
Hispanic	16 (9.1)
Non-Hispanic	159 (90.9)
Insurance type, n (%) of 218 patients with data available	
Medicare	131 (60.1)
Commercial	68 (31.2)
Medicaid	13 (6.0)
Self-pay	6 (2.8)
Region, n (%) of 242 patients with data available	
Northeast	25 (10.3)
Midwest	27 (11.2)
West	188 (77.7)
South	2 (<1)
Healthcare institution type, n (%)	
Academic center	244 (98.8)
Commercial hospital	3 (1.2)
Clinical characteristics	
Prevalent diagnosis and conditions of interest, n (%)	
Anemia	126 (51.0)
Hypertension	110 (44.5)
Renal impairment/failure	100 (40.5)
Peripheral neuropathy	89 (36.0)
Neutropenia	55 (22.3)
Lytic bone lesions	62 (25.1)
Hypogammaglobulinemia	39 (15.8)
Extramedullary plasmacytomas	14 (5.7)
Prior BCMA exposure	
Any prior BCMA therapy, n (%)	48 (19.4)
CAR-T therapy (cilta-cel, ide-cel), n (%)	27 (10.9)
ADC (belantamab), n (%)	25 (10.1)
Elranatamab (from clinical trial), (%)	1 (<1)

ADC, antibody drug conjugate; CAR-T, chimeric antigen receptor T cell; SD, standard deviation.

Step-up dosing (SUD)

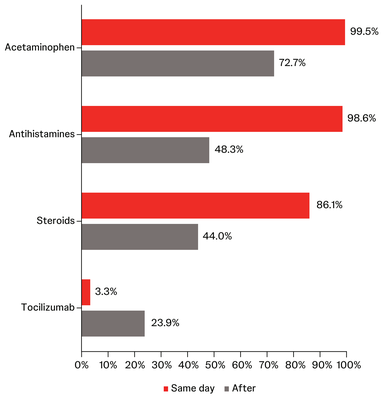
- Among 209 patients with complete SUD, a 2-day dosing interval (i.e., days 1-3-5) was the most common schedule (43.1%), followed by a 3-day dosing interval (days 1-4-7, 13.9%); 79.4% of patients (n = 166) received the third dose within 7 days of teclistamab initiation (**TABLE 2**)
- Acetaminophen, antihistamines, and steroids were used in 99.5%, 98.6%, and 86.1% of patients on the same day as teclistamab step-up doses, respectively (**FIGURE 2**)
- During SUD, 3.3% of patients received tocilizumab on the same day as teclistamab doses while 23.9% of patients received it ≥1 day after receiving teclistamab doses (**FIGURE 2**)

Table 2: Teclistamab step-up dosing schedule among patients with complete SUD (N = 209)

Step-up dosing pattern	
Exact 2-day interval (days 1-3-5), n (%)	90 (43.1)
Exact 3-day interval (days 1-4-7), n (%)	29 (13.9)
Exact 4-day interval (days 1-5-9), n (%)	13 (6.2)
Other*, n (%)	77 (36.8)
Time from the first to the third teclistamab dose, median (IQR), days	5 (4–6)

IQR, interquartile range.
*Dosing schedule with different intervals between doses (e.g., days 1-3-7, days 1-4-6) were included as other dosing pattern

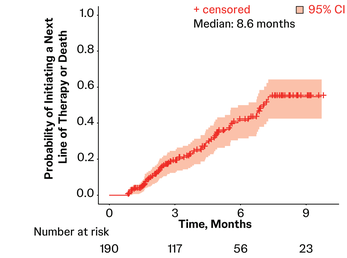
Figure 2: Medication use on the same day and more than 1 day after teclistamab doses during the step-up dosing period



Treatment effectiveness

- At data cut-off, 61 patients had initiated a subsequent LOT after starting teclistamab or died, as proxies for disease progression. The probability of initiating a subsequent LOT or death at 3, 6, and 9 months was 16.7% (95% CI, 11.7%-23.4%), 35.7% (95% CI, 27.9%-44.9%), and 55.2% (95% CI, 44.8%-66.3%) respectively, and the median TTNT or death was 8.6 months (**FIGURE 3**)

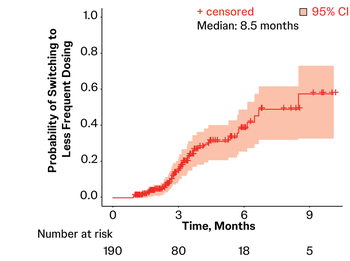
Figure 3: Probability of initiating a next line of therapy or death



Less frequent dosing schedule

- At data cut-off, 190 patients completed ≥1 cycle of teclistamab use (≥28 days after the index date) with a mean (SD) follow-up of 5.5 (3.3) months (median 5.1 [IQR 2.5, 8.3] months)
- A total of 39 patients had switched from QW to less frequent dosing (Q2W or Q4W) and most of these patients (32/39) were on Q2W schedule. The probability of switching to less frequent dosing at 3, 6, and 9 months post-index was 15.5% (95% CI, 10.2%-23.2%), 38.3% (95% CI, 27.9%-50.9%), and 57.5% (95% CI, 39.4%-76.8%), respectively, and the median time to switching to less frequent dosing was 8.5 months. (**FIGURE 4**)
- Switching to Q4W schedule was rare at the time of data cut-off

Figure 4: Probability of switching from weekly to less frequent dosing



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