Real-World Belantamab Mafodotin Use: A US Retrospective Longitudinal Pharmacy and Medical Open-Source Claims Database Assessment

Poster No. MM-404

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Background

Multiple myeloma (MM) remains incurable for most patients and the overall survival in patients refractory to proteasome inhibitors (PIs), immunomodulatory agents, and anti-CD38 monoclonal antibodies (mAbs) is relatively short.[1]

Belantamab mafodotin (BLENREP) is a first-in-class, B-cell maturation antigen (BCMA)-targeting antibody-drug conjugate (ADC) linked to a microtubule-disrupting agent (monomethyl auristatin F [MMAF]).

Belantamab mafodotin has been approved in the US since August 2020 for patients with relapsed or refractory MM (RRMM) who have received at least 4 prior lines of therapy (LOT) including a PI, an immunomodulatory agent, and an anti-CD38 therapy.

In the DREAMM-2 study (NCT03525678), triple-class exposed patients with RRMM demonstrated rapid, deep, and durable responses to belantamab mafodotin; for the 2.5 mg/kg dose cohort at 13 months of follow-up:[2]

- Overall response rate was 32%
- Median duration of response was 11 months
- Estimated duration of clinical benefit was 11.7 months
- Median progression-free survival was 2.8 months

Ocular events (including those reported in DREAMM-2 for belantamab mafodotin; blurred vision [25%], keratopathy [72%], and dry eye [15%]) are a known class effect of MMAF-containing ADCs, and can be managed with dose delays/reductions.[3,4]

There is a need to understand real-world treatment patterns now that belantamab mafodotin has been available as a treatment option since August 2020.

Aim

This study utilized a real-world claims database to examine treatment patterns in US patients prior to and during belantamab mafodotin use in real-world clinical practice.

Methods

Study design

This was a descriptive retrospective cohort study conducted using linked longitudinal pharmacy claims (LRx) and medical claims (Dx) data from IQVIA's LRx and Dx open-source US claims databases (**Figure 1**).

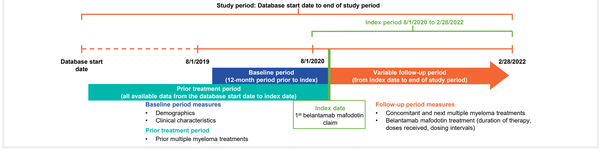
Adult patients with ≥1 claim for belantamab mafodotin in LRx or Dx during the index period, which spanned from the month of belantamab mafodotin FDA approval (August 2020) to the end of the study period (February 2022) were identified on their first observed claim for belantamab mafodotin (index date).

- Belantamab mafodotin claims were identified by a Healthcare Common Procedure Coding System (HCPS) code (J-9037 or C-9069) or National Drug Code (NDC) (00173089601).

Patient demographic and clinical characteristics, prior MM treatment regimens, and retreatments (where a particular drug is used more than once in a separate LOT) were evaluated during baseline period from the first day of available data to the index date.

Belantamab mafodotin utilization and concurrent treatments were evaluated during a variable follow-up period from the index date to the last observed belantamab mafodotin claim (+21 days to account for days covered by the last administration) or the end of the study period (February 28, 2022).

Figure 1. Study design



Data source and collection

The LRx database includes nearly 4 billion prescription claims per year derived from electronic information received from pharmacies, payers, software providers, and transactional clearing houses.

The Dx database contains approximately 1 billion professional fee claims per year, representing over 870,000 practitioners per month including approximately 236 physician specialties and non-physician practitioners (e.g., nurse practitioner and physician assistants).

LRx and Dx patient claims are linked deterministically through a common patient token. LRx and Dx data have a 1–2 month lag, which is ideal for providing early insight into relatively new-to-market products.

Combined, the LRx and Dx claims databases have a larger footprint than other payer-based claims databases, and receive data from all payers including commercial, Medicare, and Medicaid, as well as self-paying patients.

Analysis

All analyses were descriptive and were performed using SAS version 9.3.

Results

Baseline characteristics

Overall, 695 patients met the eligibility criteria and were included in the analysis; 52.5% were male with a median age of 70 years (**Table 1**).

The most frequent comorbidities were hypertension (59.3%), osteoarthritis (48.6%), and chronic pain/fibromyalgia (31.5%).

The most frequent ocular conditions in the baseline period were cataracts (30.5%), dry eye (18.6%), and glaucoma (12.7%).

Prior treatments

Prior to their first claim for belantamab mafodotin, most patients had been treated with corticosteroids (98.7%), PIs (89.1%), anti-CD38 mAbs (83.5%), and immunomodulatory agents (65.3%) (**Table 2**).

A median of 4 therapeutic classes had been used, and 582 patients (83.7%) had received ≥1 therapeutic class retreatment prior to belantamab mafodotin therapy.

At LOT 2–8, daratumumab-containing regimens were most common and carfilzomib-containing regimens with or without daratumumab were the second most frequent (**Figure 2**).

Table 1. Baseline characteristics

	Patients receiving belantamab mafodotin (N=695)
Demographics	
Male, n (%)	365 (52.5)
Age, years, mean (SD) [median]	69.2 (9.9) [70.0]
Age groups, n (%)	
18–44 years	8 (1.2)
45–54 years	50 (7.2)
55–64 years	154 (22.2)
65–74 years	262 (37.7)
Over 75 years	221 (31.8)
Clinical characteristics, n (%)	
Charlson comorbidity index, median	4.0
0	5 (0.7)
1	0 (0)
2	167 (24.0)
3+	523 (75.3)
Comorbidities (affecting >15% of population)*	
Hypertension	412 (59.3)
Osteoarthritis	338 (48.6)
Chronic pain/fibromyalgia	219 (31.5)
Cardiac arrhythmia	190 (27.3)
Dyslipidemia	180 (25.9)
Diabetes mellitus	151 (21.7)
Myocardial infarction/coronary artery disease	117 (16.8)
Congestive heart failure	108 (15.5)
Ocular conditions in the baseline period*	
Any ocular condition of interest	325 (46.8)
Cataracts	212 (30.5)
Dry eye	129 (18.6)
Glaucoma	88 (12.7)
Keratopathy/keratitis	53 (7.6)
Cataract surgery	43 (6.2)
Blurred vision/decreased acuity	35 (5.0)
Eye pain	2 (0.3)
Photophobia (or light sensitivity)	1 (0.1)
Time from the first observed MM treatment to index, days	
Mean (SD)	2903 (1638)
Median (range)	2670 (0–7300)
Insurance type, n (%)	
Commercial	287 (41.3)
Medicare	400 (57.6)
Medicaid	4 (0.6)
Other	4 (0.6)

*All comorbidities were defined by ICD-10 and relevant CPT codes
CPT, Current Procedural Terminology; ICD-10, International Classification of Diseases, Tenth Revision; MM, multiple myeloma; SD, standard deviation

Table 2. Prior MM treatments

	Patients receiving belantamab mafodotin (N=695)
Prior treatment, n (%)*	
Corticosteroids	686 (98.7)
Proteasome inhibitors	619 (89.1)
Anti-CD38 monoclonal antibodies	580 (83.5)
Immunomodulatory agents	454 (65.3)
Alkylating agents	385 (55.4)
SLAMF7	167 (24.0)
Number of therapeutic classes, median	4
Therapeutic class retreatment (≥1), n (%)†	582 (83.7)
Classes of retreatment (>20%), n (%)	
Proteasome inhibitors	496 (71.4)
Immunomodulatory agents	306 (44.0)
Anti-CD38 monoclonal antibodies	211 (30.4)
Alkylating agents	151 (21.7)
Number of prior lines of therapies, median	4
Number of prior lines of therapies, n (%)	
<4	256 (36.8)
≥4	439 (63.2)

*Prior therapies may have been underestimated as reporting on some of the MM medications was embargoed by manufacturers and/or specialty pharmacies for certain periods of time, leading to some incompleteness of data. Embargoed products included lenalidomide, pomalidomide, selinexor, thalidomide, ixazomib, and bortezomib. Although data captured for these MM treatments may not be complete in open-source claims, some claims data for these medications were included in this analysis, i.e., medical claims for infused medications and pharmacy claims from switch suppliers for oral medications
†Class retreatment is defined by the patient having the same class of major MM treatment(s) that the patient previously used in an earlier LOT in the prior treatment period. Classes were defined as alkylating agents, anti-CD38 monoclonal antibodies, antibody-drug conjugate, antimitotic agents, antineoplastic antibiotics, BCL-2 inhibitors, histone deacetylase inhibitors, immunomodulators, proteasome inhibitors, SINE, and SLAMF7. Major MM treatments do not include corticosteroids (dexamethasone, prednisone)
BCL-2, B-cell leukemia/lymphoma-2; CD38, cluster of differentiation-38; LOT, line of therapy; MM, multiple myeloma; SINE, selective inhibitor of nuclear export; SLAMF7, signaling lymphocyte activation marker family member 7

Belantamab mafodotin utilization during follow-up

Among the 210 patients (30.2%) with at least 6 months of available follow-up data, median follow-up was 307 days (range 180–532) from the index date.

The median duration of belantamab mafodotin treatment was 86 days (range 22–455) (**Figure 3**).

Doses of belantamab mafodotin were administered a median of 28 days apart (range 8–274).

Among patients with dose interruption data, 49/176 patients (27.8%) had a treatment gap of 29–56 days and 63/176 (35.8%) had treatment gap of >56 days (**Figure 3**).

Among the 167 patients with >1 evaluable dose, 119 (71.3%) had no dose reduction and 48 (28.7%) had ≥1 dose reduction (**Figure 3**). A reduced dose is defined as a dose with ≥20% reduction from the previous dose.

Among the 107 patients with no dose modification, the median duration of belantamab mafodotin treatment was 89 days (range 29–436); median number of doses was 3 (1–12).

Among the 48 patients with a dose decrease, median duration of belantamab mafodotin treatment was 228 days (range 43–455); median number of doses was 4 (1–15).

Persistence

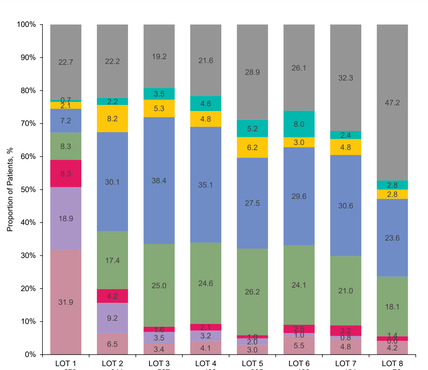
Median (95% CI) persistence for belantamab mafodotin treatment was 2.9 months (2.1, 4.3) (**Figure 4**).

MM treatments received during belantamab mafodotin treatment

During belantamab mafodotin treatment, 80/210 patients (38.1%) also received additional MM treatments (**Table 3**).

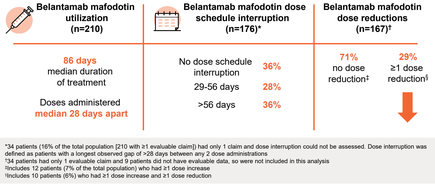
The MM treatment most commonly used in addition to belantamab mafodotin was dexamethasone (n=66/210; 31.4%).

Figure 2. Regimen by proportion of patients received at each LOT*



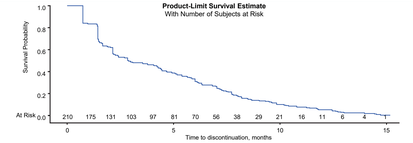
*LOT was defined as in Rajkumar et al.[5] All MM treatments of interest observed within 28 days after the first claim for the first MM treatment were included in the LOT. The LOT ended on the earliest (first) date that either of the following occur: 1) the last day of treatment for all the MM treatments in the regimen; or 2) the date the LOT is advanced due to addition of a new or incompatible MM treatment. A discontinued regimen restarted at a later date was counted as a new LOT if there were ≥1 other regimens administered in between. The 5 most frequently reported regimens not containing carfilzomib or daratumumab were reported for each LOT and could contain dexamethasone or prednisone
†Daratumumab-containing regimens were any regimen containing daratumumab with or without dexamethasone or prednisone
‡Carfilzomib-containing regimens were any regimen containing carfilzomib but not daratumumab with or without dexamethasone or prednisone
§Other regimens were the remaining regimens not in the not containing carfilzomib or daratumumab or in the 5 most frequently reported regimens
Bort, bortezomib; carf, carfilzomib; cyc, cyclophosphamide; dara, daratumumab; dex, dexamethasone; elo, elotuzumab; len, lenalidomide; LOT, line of therapy; MM, multiple myeloma; pom, pomalidomide

Figure 3. Belantamab mafodotin utilization during follow-up



*34 patients (16% of the total population [210 with ≥1 evaluable claim]) had only 1 claim and dose interruption could not be assessed. Dose interruption was defined as patients' with a longest observed gap of >28 days between any 2 dose administrations
†34 patients had only 1 evaluable claim and 9 patients did not have evaluable data, so were not included in this analysis
‡Includes 12 patients (7% of the total population) who had ≥1 dose increase
§Includes 10 patients (6%) who had ≥1 dose increase and ≥1 dose reduction

Figure 4. Persistence of belantamab mafodotin treatment



	Number of patients with an event (discontinued belantamab mafodotin) at each month															
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Number of patients with an event (discontinued belantamab mafodotin)	35	44	29	5	16	16	10	18	8	8	5	5	6	1	3	1

Table 3. MM treatments received during belantamab mafodotin treatment (≥2% patients)

Treatment received during belantamab mafodotin treatment, n (%)	Patients with at least 6 months of available follow-up data (n=210)
Any other multiple myeloma treatment	80 (38.1)
Dexamethasone	66 (31.4)
Prednisone	11 (5.2)
Carfilzomib	5 (2.4)
Bortezomib	4 (1.9)
Pomalidomide	4 (1.9)

MM, multiple myeloma

Study limitations

The sample size of patients for the 6-month follow-up was small, due to the varied dates of belantamab mafodotin treatment initiation.

Dose determination was limited by information available in claims data and available follow-up time.

Open-source claims data, as with other claims data, may be incomplete or miscoded, and have the potential to introduce bias into study analyses.

Prior treatment use may be underestimated as a result of reporting embargoes on some MM medications, leading to some incompleteness of data.

Conclusions

Real-world evidence from this study suggests that use of belantamab mafodotin in clinical practice is generally consistent with the label indication.

- Patients who experience ocular events are managed with dose reductions and dose schedule holds.[3]
- Despite monotherapy indication, one-third of patients received concomitant dexamethasone during belantamab mafodotin treatment. Other real-world evidence of belantamab mafodotin in combination with dexamethasone showed an overall response rate of 46%.[6]
- Patients are frequently retreated with other therapeutic classes prior to receiving belantamab mafodotin, highlighting its utility in triple-class refractory patients.

Ongoing studies with belantamab mafodotin are evaluating the impact of alternative dosing schedules and combinations on treatment outcomes to optimize its use while minimizing the occurrence of ocular events.

Disclosures

NB, **CM**, **PFW**, and **AD** are employees of GSK. **KMS**, **KS**, and **CCC** are employees of IQVIA.

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Abbreviations

ADC, antibody-drug conjugate; BCMA, B-cell maturation antigen; CD38, cluster of differentiation-38; CI, confidence interval; Dx, medical claims database; HCPS, Healthcare Common Procedure Coding System; LOT, line of therapy; LRx, longitudinal pharmacy claims database; mAbs, monoclonal antibodies; MM, multiple myeloma; MMAF, monomethyl auristatin F; NDC, National Drug Code; PI, proteasome inhibitors; RRMM, relapsed or refractory multiple myeloma

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