

Multiple Myeloma Update

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1

Disclosures

I have nothing to disclose.

I will not be discussing off-label indications.

2

Objectives

1. Identify the current guideline-based therapeutic recommendations for the treatment of multiple myeloma
2. Describe the unique toxicity profiles of bispecific therapies used in the treatment of patients with multiple myeloma
3. Evaluate the role of bispecific therapies in the treatment of patients with multiple myeloma

3

Our Journey Today

- Brief background of multiple myeloma
- Review currently available treatments for multiple myeloma
- Discuss recent myeloma drug approvals, focusing on bispecific therapies
 - Teclistamab
 - Talquetamab
 - Elranatamab
- Discuss unique adverse effects for the recently approved bispecific therapies
- Discuss place in therapy for the recently approved bispecific therapies

4

Multiple Myeloma Background & Treatment

5

Multiple Myeloma Definition

Multiple Myeloma is a B-cell malignancy characterized by proliferation of plasma cells that accumulate in the bone marrow, leading to the production of monoclonal immunoglobulin (M-protein)

6

Multiple Myeloma Definition

The diagram illustrates the transition from a healthy bone marrow to multiple myeloma. On the left, 'Healthy Bone Marrow' shows a normal white blood cell (B-cell) and a plasma cell producing normal antibodies. On the right, 'Multiple Myeloma' shows DNA damage leading to a 'Damaged white blood cell (B-cell)' which becomes a 'Multiple myeloma cell' (M Protein).

7

Multiple Myeloma Background

- Represents 1.8% of all new cancer cases
- United States 2023 estimates
 - New cases: 35,730
 - Deaths: 12,590
- Median Age at diagnosis: 69 years (65-74)
- Risk Factors
 - African Americans
 - Males
 - Environmental or work-related exposures to chemicals

Group	Rate
African	6.2
Alfrican	6.4
Hispanic	5.7
Non-Hispanic American Indian/Alaska Native	7.8
Non-Hispanic Asian/Pacific Islander	5.5
Non-Hispanic Black	16.8
Non-Hispanic White	6.1

8

Multiple Myeloma Prognosis

- Incurable, but highly treatable
- Goals of Treatment: Disease control, improved quality of life, and prolong survival
- 5-Year Relative Survival: 59.8%

The diagram shows a myeloma cell with genetic markers: t(4;14), t(14;16), t(14;20), t(11;14), and del(14). These are associated with 'High-Risk/Unfavorable prognosis'.

9

Front-Line Myeloma Treatment

Transplant Eligible

- Preferred Regimens
 - Bortezomib/Lenalidomide/Dexamethasone (category 1)
 - Carfilzomib/Lenalidomide/Dexamethasone
- Other Recommended Regimens
 - Daratumumab/Lenalidomide/Bortezomib/Dexamethasone

Non-Transplant Eligible

- Preferred Regimens
 - Bortezomib/Lenalidomide/Dexamethasone (category 1)
 - Daratumumab/Lenalidomide/Dexamethasone (category 1)
- Other Recommended Regimens
 - Daratumumab/Bortezomib/Melphalan/Prednisone (category 1)
 - Carfilzomib/Lenalidomide/Dexamethasone
 - Daratumumab/Cyclophosphamide/Bortezomib/Dexamethasone

NCCN GUIDELINES: MULTIPLE MYELOMA, VERSION 1.2024

10

Relapsed/Refractory Myeloma

- Relapsing/remitting disease pattern
- With each relapse, becomes harder to capture and maintain a response
- Additionally, harder for patients to recover from treatment the further along they are
- Increased risk for adverse effects including opportunistic infections

CONCISE REVIEW OF DISEASE AND TREATMENT OPTIONS, INTERNATIONAL MYELOMA FOUNDATION, 2018

11

Second & Third Line Myeloma Treatment

Anti-CD38 Therapies

Immunomodulators

Proteasome Inhibitors

Anti-SLAMF7 Therapies

Oral Targeted Therapies (Selinexor & Venetoclax)

NCCN GUIDELINES: MULTIPLE MYELOMA, VERSION 1.2024

12

Fourth Line and Beyond Treatment: To Be Continued...

Preferred Regimens

- CAR T-Cell Therapy
 - Ciltacabtagene autoleucl
 - Idecabtagene autoleucl

Other Recommended Regimens

- Bendamustine
- High-Dose or Fractionated Cyclophosphamide
- Selinexor/Dexamethasone
- Belantamab mafodotin-blmf

NCCN GUIDELINES: MULTIPLE MYELOMA, VERSION 1.2024

13

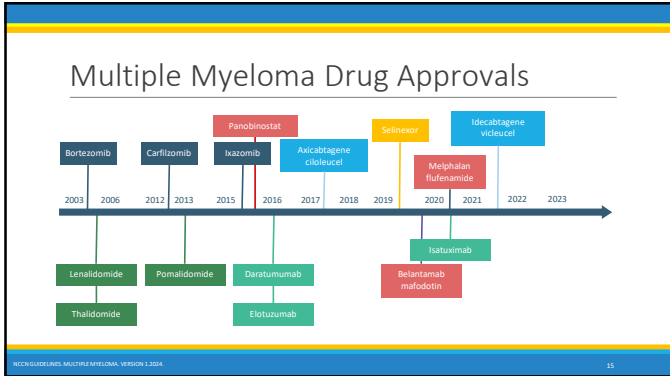
Audience Response Question #1

Which of the following medications is currently preferred in the fourth line setting of relapsed/refractory multiple myeloma according to the most recent NCCN guidelines?

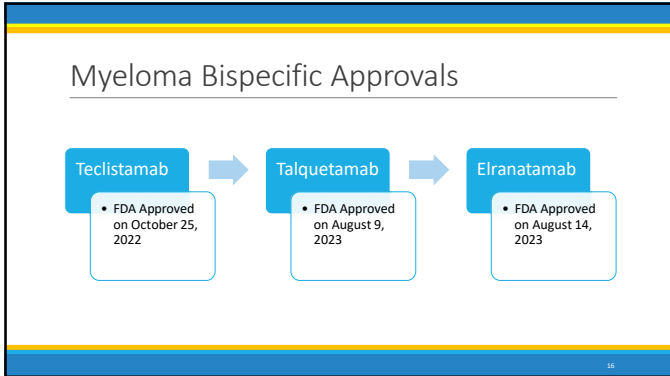
- A. Venetoclax
- B. Carfilzomib
- C. Ciltacabtagene autoleucl
- D. Melflufen

NCCN GUIDELINES: MULTIPLE MYELOMA, VERSION 1.2024

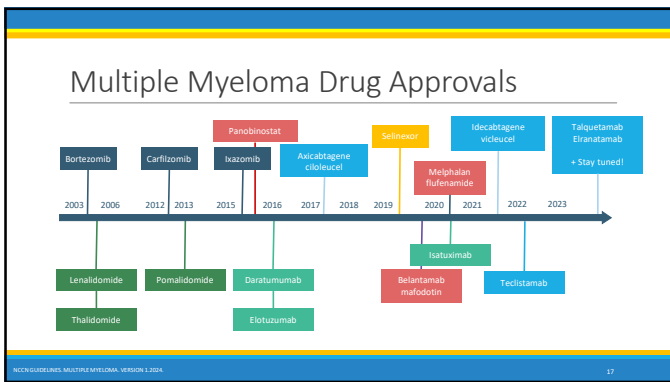
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15



16



17

Teclistamab

18

Teclistamab Background

Mechanism of Action

- Humanized antibody and bispecific B-cell maturation antigen (BCMA)-directed CD3 T-cell engager
- Binds to the CD3 receptor on the surface of T-cells, and BCMA expressed on the surface of multiple myeloma cells
- This binding results in T-cell activation, the release of various proinflammatory cytokines, and the lysis of BCMA-expressing multiple myeloma cells

Administered subcutaneously and requires step-up dosing upon initiation of therapy

Black Box Warnings

- Cytokine Release Syndrome
- Neurologic Toxicity including Immune Effector Cell-Associated Neurotoxicity Syndrome (ICANS)

MORHAUF ET AL. WJMO/JMO 2023;38(7):495-505. <https://doi.org/10.1002/wjmo.1430>

19

Teclistamab Dosing and Administration

Adult Dosing	Day	Dose	
Step-Up Dosing Schedule	Day 1	Step-up dose 1	0.06 mg/kg
	Day 4	Step-up dose 2	0.3 mg/kg
	Day 7	First treatment dose	1.5 mg/kg
Weekly Dosing Schedule	One week after first treatment dose and weekly thereafter	Subsequent treatment doses	1.5 mg/kg weekly

Step up rounding rules are provided in the prescribing information based on weight.

** Step up dose 2 and first treatment doses may be administered 2 to 4 days after and, if necessary, up to 7 days after prior dose to allow for resolution of adverse reactions.

MORHAUF ET AL. WJMO/JMO 2023;38(7):495-505. <https://doi.org/10.1002/wjmo.1430>

20

MajesTEC-1: Teclistamab

Key eligibility criteria:

- RRMM²
- ECOG PS 0 or 1
- Triple-class exposed (PI, IMiD, anti-CD38 mAb)
- No prior BCMA-directed therapy

Phase 1

- Dose escalation: IV cohorts
- Dose expansion: RP2D 1.5 mg/kg SC QW
- SC cohorts

Phase 2

- Phase 2 efficacy cohort

Primary endpoint

- ORR

Key secondary endpoints

- PK/PD
- DOR
- PS
- OS
- MRD negativity
- AEs
- HRQoL

Definitions: ORR = Overall Response Rate, PK/PD = Pharmacokinetics/Pharmacodynamics, DOR = Duration of Response, PS = Performance Status, FFS = Overall Survival, OS = Overall Survival, MRD = Minimal Residual Disease, AEs = Adverse Effects, HRQoL = Health-Related Quality of Life

Patient Characteristics: Median lines of therapy: 5 (2-14)
High risk cytogenetics: 25%
Median Age: 64 years (33-84)

MORHAUF ET AL. WJMO/JMO 2023;38(7):495-505. <https://doi.org/10.1002/wjmo.1430>

21

Talquetamab

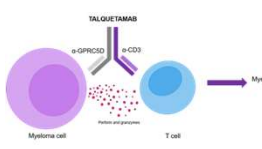
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25

Talquetamab Background

Mechanism of Action

- Binds to the CD3 receptor on the surface of T-cells, and G protein-coupled receptor class C group 5 member D (GPC5D) expressed on the surface of multiple myeloma cells
- This binding results in T-cell recruitment and activation, the release of various proinflammatory cytokines, and the lysis of BCMA-expressing multiple myeloma cells



Administered subcutaneously and requires step-up dosing upon initiation of therapy

Black Box Warnings

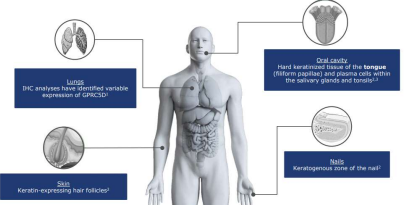
- Cytokine Release Syndrome
- Neurologic Toxicity including Immune Effector Cell-Associated Neurotoxicity Syndrome (ICANS)

SCHWARTZ ET AL. | JCO ONCOL. 2022;40(18):SUPPL18005.
 PUBLISHED ONLINE FIRST IN JOURNAL OF CLINICAL ONCOLOGY, VOL 40, NO 18, AUGUST 2022. DOI: 10.1200/JCO.2022.40.18.18005

26

26

GPC5D Expression



Lung: IHC analysis have identified variable expression of GPC5D

Skin: Keratin-expressing hair follicles

Ovary: First keratinized tissue of the female system located just above and within the uterine glands and uterus

BBB: Keratogenous zone of the nail

Definitions: GPC5D = G-protein-coupled receptor class 5 member, IHC = immunohistochemistry

SMITH ET AL. | JCO TRANS. 2023;10(12):2018

27

27

MonumenTAL-1: Safety

Adverse Effect	Any Grade (%)	Grade 3 or 4 (%)
Neutropenia	36	32
Pyrexia	18	0
Thrombocytopenia	23	11
Anemia	43	23
Cytokine Release Syndrome (CRS)	75	0
Neurotoxicity	7.7	0
Infection	50	12
Skin-Related Event	70	2
Nail-Related Event	27	2
Weight Decrease	32	2
Dry Mouth	57	0
Dysphagia	27	0

	CRS	ICANS
Time to Onset (days)	2 (1-8)	3 (2-16)
Duration of Toxicity (days)	2 (1-29)	1 (1-15)

SCHWARTZ, ET AL. / JCO ONCOL. 2023;41(15):SUPPL18078 31

31

Talquetamab: Considerations

<p>REMS REQUIREMENTS</p> <ul style="list-style-type: none"> Prescribers must counsel patients receiving talquetamab about risk of CRS and ICANS and provide a patient wallet card Pharmacists and healthcare settings that dispense talquetamab must be certified with the REMS and must verify prescribers are certified through the REMS Wholesalers and distributors must only distribute talquetamab to certified pharmacies or certified healthcare settings 	<p>SUPPORTIVE CARE</p> <ul style="list-style-type: none"> Premedicate with acetaminophen, diphenhydramine, and dexamethasone through first full dose Antiviral to prevent herpes zoster infection Pneumocystis jirovecii prophylaxis Supplement IVIG for IgG < 400 Consider antibiotic for first month of treatment to prevent bacterial infection Breathable shoes and remove nail polish to reduce nail toxicities Consider antifungal therapy for patients with oral toxicities Hydrating and barrier creams for dry, irritated skin and consider topical steroids for refractory cases
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32

32

Elranatamab

33

33

Elranatamab Background

Mechanism of Action

- Humanized antibody and bispecific B-cell maturation antigen (BCMA)-directed CD3 T-cell engager
- Binds to the CD3 receptor on the surface of T-cells, and BCMA expressed on the surface of multiple myeloma cells
- This binding results in T-cell activation, the release of various proinflammatory cytokines, and the lysis of BCMA-expressing multiple myeloma cells

Black Box Warnings:

- Cytokine Release Syndrome
- Neurologic Toxicity including Immune Effector Cell-Associated Neurotoxicity Syndrome (ICANS)

Administered subcutaneously and requires step-up dosing upon initiation of therapy

ELSONKHAM ET AL. NAT MED. 2023
ELSONKHAM ET AL. PRESCRIBING INFORMATION, NEW YORK, NY. P/218-NC. AUGUST 2023. 34

34

Elranatamab Dosing and Administration

Adult Dosing	Day	Dose	
Step-up Dosing Schedule	Day 1	Step-up dose 1	12 mg
	Day 4	Step-up dose 2	32 mg
	Day 8	First treatment dose	76 mg
Weekly Dosing Schedule	One week after first treatment dose and weekly thereafter	Subsequent treatment doses every week	76 mg
Bi-Weekly Dosing Schedule	Starting week 25	Subsequent treatment doses every 2 weeks	76 mg

Only therapy we have talked about today where dosing is FLAT and minimizes vial waste!

*Package insert states: Due to the risk of cytokine release syndrome (CRS), patients should be hospitalized for 48 hours after elranatamab step-up dose 1, and for 24 hours after elranatamab step-up dose 2.
** Step up dose 2 and first treatment doses may be administered 2 to 4 days after and, if necessary, up to 7 days after prior doses to allow for resolution of adverse reactions.

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ELSONKHAM ET AL. PRESCRIBING INFORMATION, NEW YORK, NY. P/218-NC. AUGUST 2023. 35

35

MagnetisMM-3: Elranatamab

Key Eligibility Criteria

- RMM refractory to ≥1 PI, ≥1 IMiD, and ≥1 anti-CD38 mAb
- ECOG 0-2

Intervention

Cohorts	Dose	Frequency
Cohort A: No Prior BCMA-Targeted Therapy	12 mg on Day 1 and 32 mg on Day 4 of the first week	Patients who received QW dosing for ≥6 cycles and achieved PR or better for ≥2 months were switched to Q2W dosing
Cohort B: Prior BCMA-Targeted Therapy	SC elranatamab 76 mg QW on a 28-day cycle	

Primary End Point

- CR

Secondary End Points

- CR
- Time to Response
- Duration of Response
- PPS
- OS
- Safety
- Pharmacokinetics

Definitions: RMM = Relapsed/Refractory Multiple Myeloma, ECOG = Eastern Cooperative Oncology Group, ORR = Overall Response Rate, DOR = Duration of Response, PFS = Progression-Free Survival, OS = Overall Survival, MRD = Minimal Residual Disease, PI = Proteasome Inhibitor, IMiD = Immunomodulator, mAb = Monoclonal antibody, CR = Complete Response

Patient Characteristics
Median lines of therapy: 5 (2-22)
High risk cytogenetics: 25%
Median Age: 68 years (36-89)

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36

MagnetisMM-3: Outcomes

Outcomes	Treatment Group	Range or 95% CI
Overall Response	61%	(51.8-69.8)
Duration of Response	Not reached	N/A
Time to Response	1.2 mths	(0.9-7.4)
Progression-Free Survival	N/A. Kaplan-Meier estimate at 15 months was 50.9%	N/A
12 Mths Overall Survival	N/A. Kaplan-Meier estimate at 15 months was 56.2%	N/A

Definitions: ORR = Overall Response Rate, CR = Complete Response; PD = Progressive Disease, PR = Partial Response, iCR = Stringent CR, SD = Stable Disease, EMD = Extremity Disease

ESONHRA ET AL. NATA 2023 37

37

MagnetisMM-3: Safety

Adverse Effect	Any Grade (%)	Grade 3 or 4 (%)
Neutropenia	48.8	48.8
Pyrexia	30.1	4.1
Injection site reactions	26.8	0
Fatigue	36.63	3.3
Neurotoxicity (ICANS)	3.3	7
Cytokine release syndrome (CRS)	57.7	0
Upper respiratory tract infection	16.3	0
Pneumonia	16.3	8.1
Nausea	26.8	0
Diarrhea	42.3	1.6
Headache	23.6	0

	CRS	ICANS
Time to Onset (days)	2 (1-9)	3 (1-4)
Duration of Toxicity (days)	2 (1-19)	2 (1-18)

ESONHRA ET AL. NATA 2023 38

38

Elranatamab: Considerations

REMS REQUIREMENTS

- Prescribers must counsel patients receiving elranatamab about risk of CRS and ICANS and provide a patient wallet card
- Pharmacists and healthcare settings that dispense elranatamab must be certified with the REMS and must verify prescribers are certified through the REMS
- Wholesalers and distributors must only distribute elranatamab to certified pharmacies or certified healthcare settings

SUPPORTIVE CARE

- Premedicate with acetaminophen, diphenhydramine, and dexamethasone through first full dose
- Antiviral to prevent herpes zoster infection
- Pneumocystis jirovecii prophylaxis
- Supplement IVIG for IgG < 400
- Consider antibiotic for first month of treatment to prevent bacterial infection

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39

Audience Response Question #2

Which of the following bispecific therapies discussed today has a unique adverse effect of nail changes and extreme skin dryness that requires patient counseling and education to prevent and treat?

- A. Teclistamab
- B. Talquetamab
- C. Elranatamab
- D. Daratumumab

40

Myeloma Bispecific Approvals

Each one of these medications was approved in the same treatment setting:
Treatment of relapsed or refractory multiple myeloma in adults who have received at least 4 prior lines of therapy, including a proteasome inhibitor, an immunomodulatory agent, and an anti-CD38 monoclonal antibody

41

Fourth Line and Beyond Treatment: Finalized

Preferred Regimens

- CAR T-Cell Therapy
 - Cilta cabtagene autoleucl
 - Idecabtagene autoleucl
- Bispecific Therapies
 - Teclistamab
 - Talquetamab
 - Elranatamab

Other Recommended Regimens

- Bendamustine
- High-Dose or Fractionated Cyclophosphamide
- Selinexor/Dexamethasone
- Belantamab mafodotin-bimf

42

Selection and Sequencing of Therapies

Was prior BCMA-targeted therapy used in the last 6 months?

How quickly is patient relapsing?

Weekly versus Biweekly dosing of BCMA-targeted therapy

Patient resources/support

43

43

Audience Response Question #3

Which of the following bispecific therapies would you consider the best option in the setting of a patient who most recently received ciltacabtagene autoleucel, a BCMA-targeted CAR T-cell therapy, and relapsed <6 months after the infusion?

- A. Teclistamab
- B. Talquetamab
- C. Elranatamab
- D. Daratumumab

44

44

Conclusions

- Multiple myeloma is an incurable disease and though we have a myriad of therapies currently available, additional agents in the relapsed/refractory setting are needed
- Patient education for those receiving bispecific therapies for myeloma is absolutely crucial due to complex adverse effects like CRS, ICANS, and oral/skin toxicities
- Pharmacists can play an instrumental role in the education, monitoring, and management of toxicities for patients receiving these bispecific therapies for myeloma
- Novel therapies provide new treatment options to patients with relapsed/refractory multiple myeloma, but more literature is needed to help guide the optimal sequencing of these therapies

45

45

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46

Questions?

Thank you for your time and attention!

47

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48
