

Mezigdomide, carfilzomib, and dexamethasone vs carfilzomib and dexamethasone in relapsed/refractory multiple myeloma: results from the phase 3 SUCCESSOR-2 trial

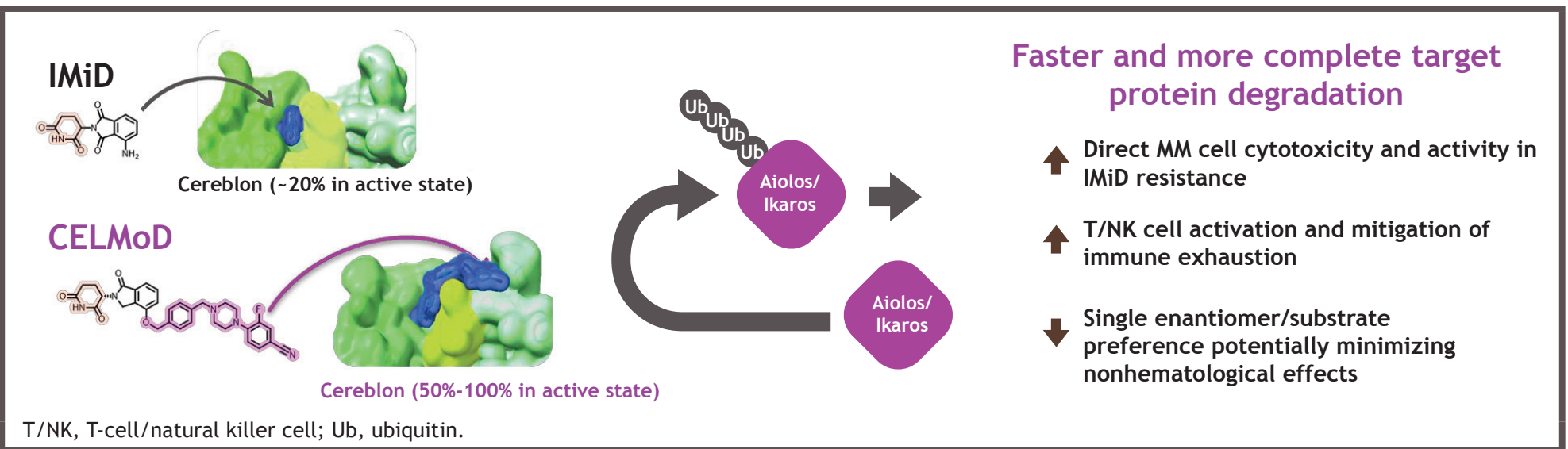
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Introduction

- An increasing number of patients with multiple myeloma (MM) entering second-line treatment are anti-CD38 monoclonal antibody (mAb)- and lenalidomide (LEN)-exposed and/or refractory, with associated poor outcomes and limited treatment options¹⁻³
- Carfilzomib plus dexamethasone (Kd) is a widely adopted standard of care in relapsed/refractory MM (RRMM) often used following anti-CD38 mAb and LEN exposure²
- Mezigdomide (Mezi) is a potent oral cereblon E3 ligase modulator (CELMoD) that induces maximal, rapid Ikaros/Aiolos degradation leading to enhanced MM-cell death and immune stimulation vs immunomodulatory drug (IMiD) agents⁴ (Figure 1)
 - Preclinically, Mezi demonstrated synergistic antitumor activity with proteasome inhibitors (PIs)⁵
- In a phase 1/2 trial, Mezi in combination with Kd (MeziKd) yielded promising efficacy with a manageable safety profile in patients with RRMM⁶
- We report results from the SUCCESSOR-2 trial (NCT0552976), evaluating MeziKd vs Kd alone in anti-CD38 mAb- and LEN-exposed patients with RRMM from first relapse. This is the first phase 3 CELMoD trial to report findings

Figure 1. Mechanism of action of the CELMoD Mezi⁴



Objective

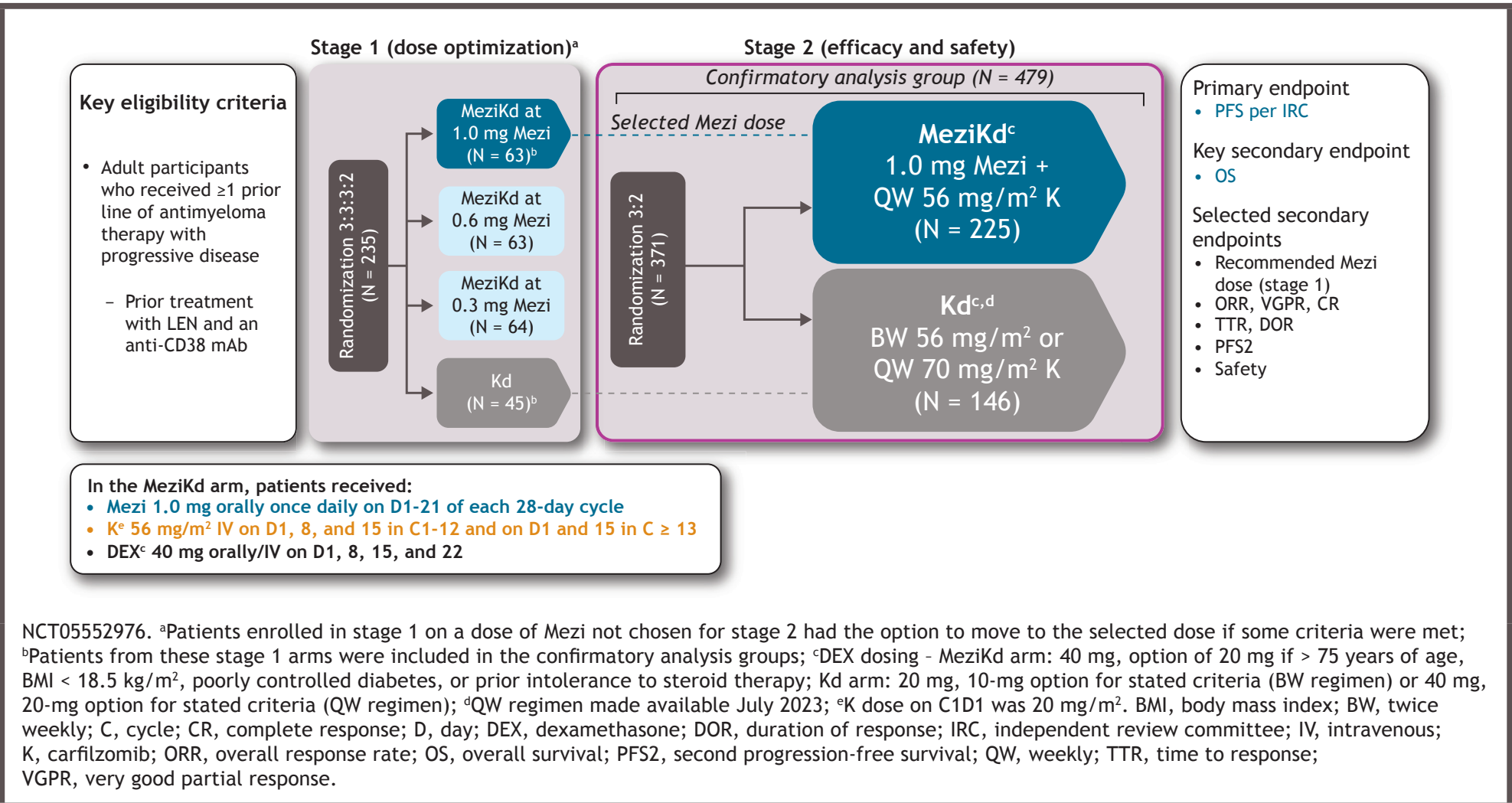
- To assess the efficacy and safety of MeziKd compared with Kd in patients with RRMM who have had prior treatment with an anti-CD38 mAb and LEN

Methods

Study design and treatment

- SUCCESSOR-2 is a randomized phase 3, two-stage, inferentially seamless trial
 - In stage 1, patients were randomized 3:3:3:2 to 1 of 3 Mezi doses (0.3 mg, 0.6 mg, and 1.0 mg) plus Kd or to Kd to identify the optimal Mezi dose for the combination
 - In stage 2, patients were randomized 3:2 to the selected MeziKd dose or Kd to evaluate the efficacy and safety of the selected Mezi dose (1.0 mg)
- The primary endpoint was progression-free survival (PFS)
- Details of the two-stage study design, treatment dosing, and endpoints are shown in Figure 2

Figure 2. SUCCESSOR-2 study design



Results

Patients and baseline characteristics

- Overall, 479 patients were included in the analysis
 - 288 in the MeziKd group (randomized to 1.0 mg Mezi in stages 1 and 2)
 - 191 in the Kd group (stages 1 and 2)
- Baseline demographics and patient characteristics were generally well balanced and reflective of a real-world patient population (Table 1)
 - Median (range) age was 68 years (30-85) and was similar in the treatment arms
 - 25.1% of patients were ≥ 75 years of age
- Overall, median (range) number of prior lines of therapy (LOTs) was 2 (1-9)
 - 92.1% of patients were triple-class-exposed
 - 37.2% were exposed to pomalidomide (POM) and 7.3% to anti-B-cell maturation antigen (BCMA) treatment
 - Most patients were refractory to anti-CD38 mAbs (85.8%), LEN (75.8%), anti-CD38 mAbs and LEN (68.1%), or their last LOT (92.9%)
- Prior exposure and refractory status per treatment arm are shown in Table 2

MeziKd significantly improved PFS vs Kd, reducing the risk of progression or death by 52%; the benefit with MeziKd was consistent across all prespecified subgroups

Figure 3. (A) PFS (primary endpoint), (B) PFS subgroup analysis

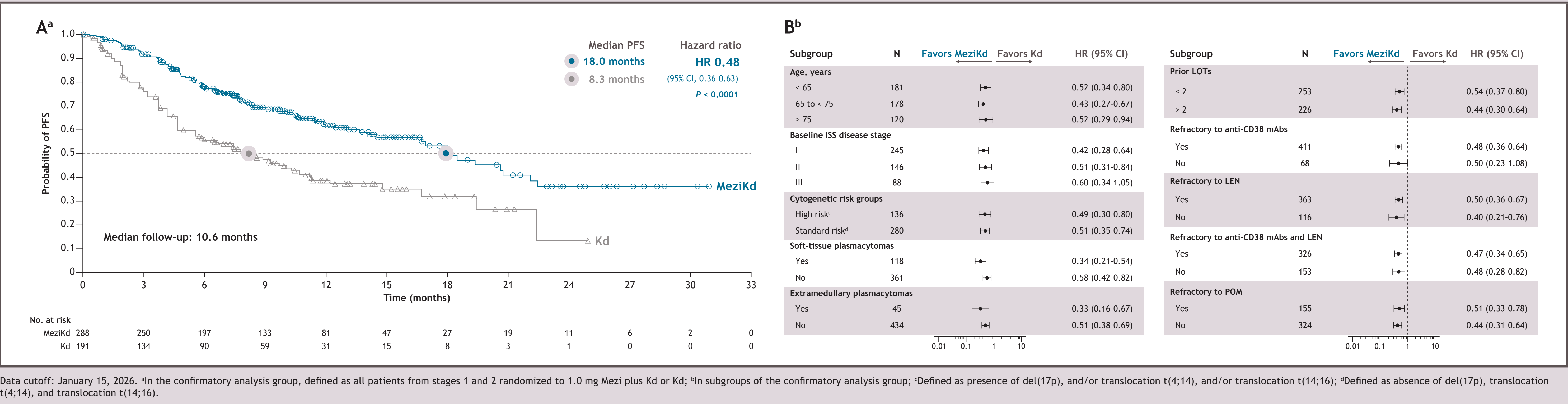


Table 1. Baseline characteristics

	MeziKd (N = 288)	Kd (N = 191)
Age, median (range), years	68.0 (40-84)	67.0 (30-85)
≥ 75 years	75 (26.0)	45 (23.6)
Male sex, n (%)	146 (50.7)	106 (55.5)
Race, n (%)		
White	162 (56.3)	114 (59.7)
Asian	90 (31.3)	57 (29.8)
Black or African American	11 (3.8)	13 (6.8)
American Indian	10 (3.5)	3 (1.6)
Unknown or missing	15 (5.2)	4 (2.1)
Time since initial diagnosis, median (range), years	4.6 (0.4-30.9)	4.5 (0.5-20.9)
ECOG PS score, n (%) ^a		
0	116 (40.3)	74 (38.7)
1	154 (53.5)	103 (53.9)
2	16 (5.6)	14 (7.3)
ISS stage at study entry, n (%)		
I	149 (51.7)	96 (50.3)
II	87 (30.2)	59 (30.9)
III	52 (18.1)	36 (18.8)
Soft-tissue plasmacytomas, n (%)		
Extramedullary plasmacytomas, %	8.7	10.5
Paraneoplastic plasmacytomas, %	17.7	17.8
High-risk cytogenetics, n (%) ^b	74 (25.7) ^c	62 (32.5) ^d
Expanded high-risk cytogenetics, n (%) ^a	162 (56.3) ^c	112 (58.6) ^d

Data cutoff: January 15, 2026. In the confirmatory analysis group, defined as all patients from stages 1 and 2 randomized to 1.0 mg Mezi plus Kd or Kd. Percentages may not total 100 due to rounding. ^aPatients in the MeziKd arm had ECOG PS score 1 during screening per eligibility requirements of 0/1 and ECOG PS score 3 at baseline; ^bDefined as presence of del(17p), and/or translocation t(4;14), and/or translocation t(14;16); ^c36/288 patients were NE; ^d27/191 patients were NE; ^eDefined as presence of del(17p), and/or translocation t(4;14), and/or translocation t(14;16) and/or amplification 1q21; ^f38/288 patients were NE; ^g29/191 were NE; ECOG PS, Eastern Cooperative Oncology Group performance status; ISS, International Staging System; NE, not evaluable or data missing.

Table 2. Prior therapy

	MeziKd (N = 288)	Kd (N = 191)
Prior LOTs, median (range)	2.0 (1-9)	2.0 (1-8)
No. of prior LOTs, n (%)		
1 prior LOT	43 (14.9)	33 (17.3)
2 prior LOTs	109 (37.8)	68 (35.6)
3 prior LOTs	64 (22.2)	35 (18.3)
4+ prior LOTs	72 (25.0)	55 (28.8)
Prior therapy exposure, n (%)		
Anti-CD38 mAbs	288 (100)	191 (100)
LEN	288 (100)	191 (100)
Triple-class exposed	265 (92.0)	176 (92.1)
POM	114 (39.6)	64 (33.5)
BCMA-targeted therapy	23 (8.0)	12 (6.3)
T cell-redirecting therapy	28 (9.7)	12 (6.3)
Refractory status, n (%) ^a		
To last prior LOT	264 (91.7)	181 (94.8)
Anti-CD38 mAbs	248 (86.1)	163 (85.3)
LEN	220 (76.4)	143 (74.9)
POM	99 (34.4)	56 (29.3)
PI	138 (47.9)	102 (53.4)
Anti-CD38 mAbs and LEN	199 (69.1)	127 (66.5)
Triple-class refractory ^b	111 (38.5)	75 (39.3)

Data cutoff: January 15, 2026. In the confirmatory analysis group, defined as all patients from stages 1 and 2 randomized to 1.0 mg Mezi plus Kd or Kd. Percentages may not total 100 due to rounding. ^aRefractory is defined as disease that is nonresponsive on therapy (failure to achieve minimal response or development of progressive disease while on therapy) or progresses within 60 days of last dose; ^bTriple-class refractory is defined as refractory to an IMiD, PI, and anti-CD38 mAb.

- At data cutoff (January 15, 2026), median follow-up was 10.6 months, discontinuations due to adverse events (AEs) were infrequent, and Mezi relative dose intensity was high (83.1%) (Table 3)
- Median treatment duration was 8.9 months for MeziKd vs 6.2 months for Kd
 - 52.4% of patients in the MeziKd arm and 31.4% in the Kd arm remained on treatment at data cutoff

Table 3. Patient disposition and treatment exposure

	MeziKd (N = 288)	Kd (N = 191)
Patients who received treatment, n (%)	288 (100)	186 (97.4)
Ongoing treatment	151 (52.4)	60 (31.4)
Discontinued treatment	137 (47.6)	126 (66.0)
Progressive disease	85 (29.5)	93 (48.7)
AE	28 (9.7)	11 (5.8)
Physician decision	12 (4.2)	6 (3.1)
Withdrawal	8 (2.8)	16 (8.4)
Treatment duration, median (range), months	8.9 (0.3-32.1)	6.2 (0.2-25.0)
Mezi relative dose intensity, median, %	83.1	-
Patients with Mezi dose reductions, n (%)	122 (42.4)	-
K relative dose intensity, median, %	86.8	94.0
Patients with K dose reductions, n (%)	101 (35.1)	41 (22.0) ^a
DEX relative dose intensity, median, %	78.1	93.0
Patients with DEX dose reductions, n (%)	106 (36.8)	58 (31.2) ^a

Data cutoff: January 15, 2026. In the confirmatory analysis group, defined as all patients from stages 1 and 2 randomized to 1.0 mg Mezi plus Kd. Percentages may not total 100 due to rounding. ^aPatients were randomized but not treated. AE, adverse event.

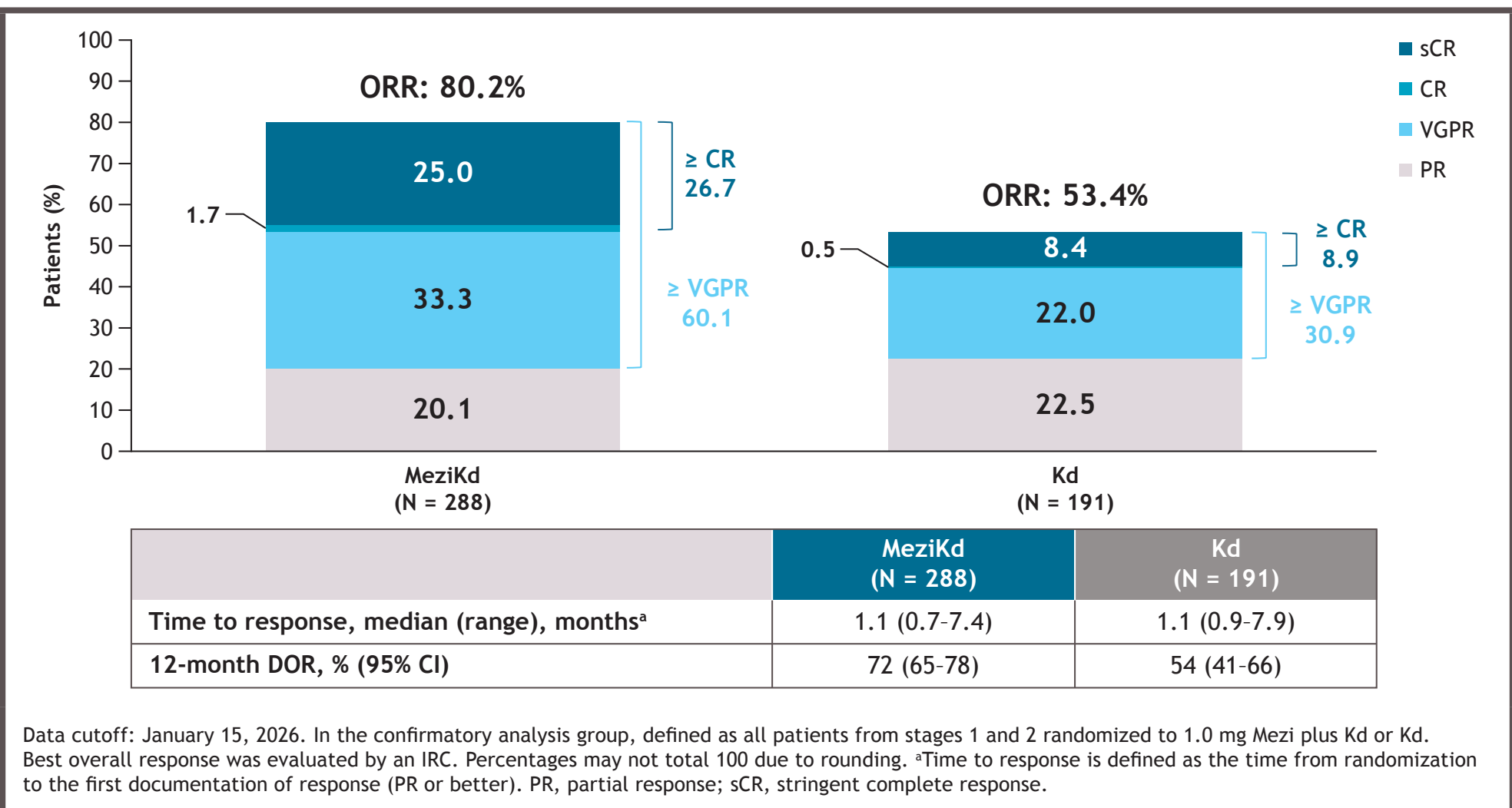
Efficacy: primary endpoint

- MeziKd significantly improved PFS vs Kd, reducing the risk of progression or death by 52% (median [95% confidence interval, CI], 18.0 [14.5-22.1] vs 8.3 [5.6-10.7] months; hazard ratio [HR], 0.48 [95% CI, 0.36-0.63]; $P < 0.0001$) (Figure 3A)
- The superior PFS survival benefit with MeziKd was consistent across all prespecified subgroups (Figure 3B)
 - This included patients with > 2 prior LOTs, prior treatment exposure/refractoriness, high-risk cytogenetics, extramedullary disease, and age ≥ 75 years

Efficacy: secondary endpoints

- The addition of Mezi to Kd deepened response, doubling the rate of VGPR or better and tripling the rate of complete response (CR) or better (Figure 4)
 - Higher ORR (80.2% vs 53.4%) and CR or better (26.7% vs 8.9%) was observed with MeziKd vs Kd
 - Median time to response was 1.1 months with each treatment
 - The 12-month DOR rate with MeziKd was numerically higher than with Kd

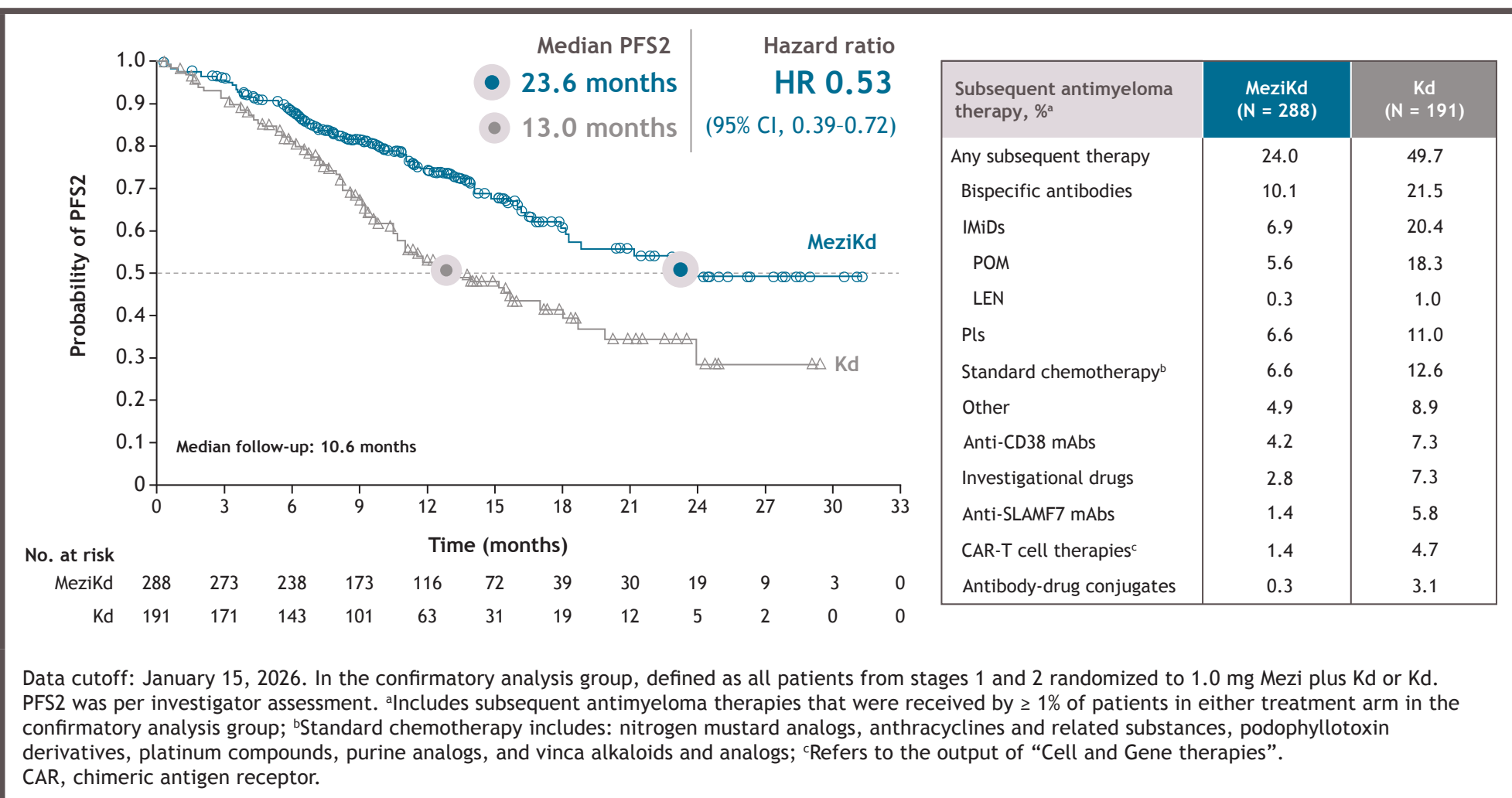
Figure 4. Treatment response



Data cutoff: January 15, 2026. In the confirmatory analysis group, defined as all patients from stages 1 and 2 randomized to 1.0 mg Mezi plus Kd or Kd. Best overall response was evaluated by an IRC. Percentages may not total 100 due to rounding. ^aTime to response is defined as the time from randomization to the first documentation of response (PR or better). PR, partial response; sCR, stringent complete response.

- PFS2 with MeziKd was superior to Kd (Figure 5)
 - MeziKd demonstrated sustained clinical benefit beyond first progression

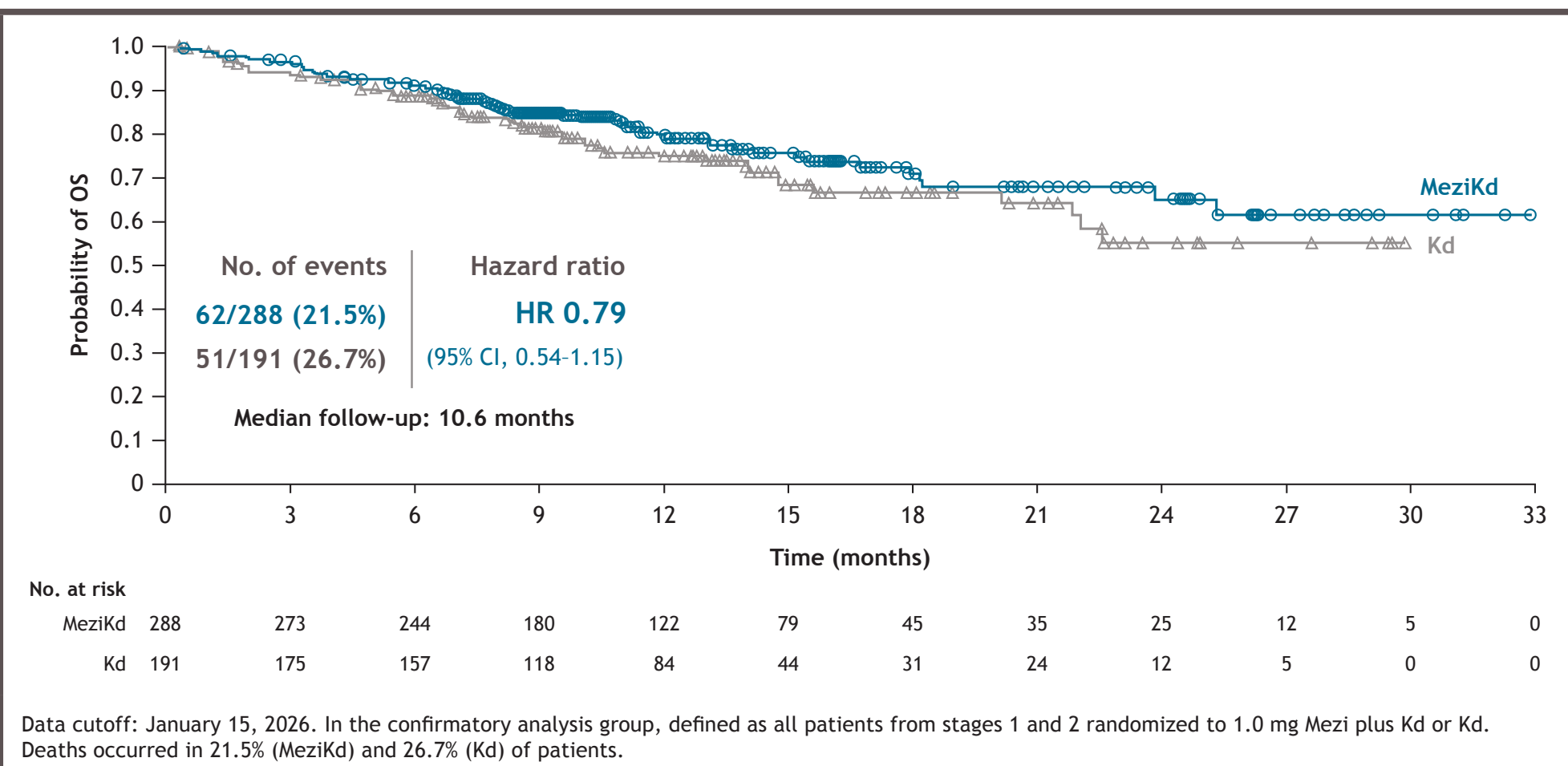
Figure 5. PFS2



Data cutoff: January 15, 2026. In the confirmatory analysis group, defined as all patients from stages 1 and 2 randomized to 1.0 mg Mezi plus Kd or Kd. PFS2 was per investigator assessment. ^aIncludes subsequent antineoplastic therapies that were received by ≥ 1% of patients in either treatment arm in the confirmatory analysis group; ^bStandard chemotherapy includes: nitrogen mustard analogs, anthracyclines and related substances, podophyllotoxin derivatives, platinum compounds, purine analogs, and vinca alkaloids and analogs; ^cRefers to the output of "Cell and Gene Therapies"; CAR, chimeric antigen receptor.

- The planned OS utility analysis demonstrates a positive OS trend favoring MeziKd with no crossover of the curves (Figure 6)
- Deaths (21.5% MeziKd vs 26.7% Kd) were mostly due to progressive disease

Figure 6. OS



Data cutoff: January 15, 2026. In the confirmatory analysis group, defined as all patients from stages 1 and 2 randomized to 1.0 mg Mezi plus Kd or Kd. Deaths occurred in 21.5% (MeziKd) and 26.7% (Kd) of patients.

Safety

- The most common treatment-emergent AEs (TEAEs) and grade 3/4 AEs are shown in Table 4
- Neutropenia, which is a known on-target and reversible AE for Mezi, was the most common grade 3/4 AE (61.1%) with MeziKd
 - Neutropenia was managed effectively with dose interruptions/modifications and/or granulocyte colony-stimulating factor (G-CSF)
 - Only 1 patient discontinued due to neutropenia with MeziKd (none with Kd)
- A reduction in grade 3/4 hypertension was observed with MeziKd, potentially associated with the lower K dose
- Grade 3/4 venous thromboembolism occurred in 2.8% (MeziKd) and 0.5% (Kd) of patients

Table 4. Most common TEAEs

	MeziKd (N = 288)		Kd (N = 186) ^a	
TEAE, ^a n (%)	Any grade	Grade 3/4	Any grade	Grade 3/4
Any TEAE	286 (99.3)	241 (83.7)	178 (95.7)	105 (56.5)
Hematologic				
Neutropenia ^a	199 (69.1)	176 (61.1)	32 (17.2)	17 (9.1)
Febrile neutropenia	24 (8.3)	23 (8.0)	0	0
Thrombocytopenia ^d	174 (60.4)	113 (39.2)	77 (41.4)	42 (22.6)
Anemia	149 (51.7)	75 (26.0)	66 (35.5)	28 (15.1)
White blood cell count decrease	67 (23.3)	54 (18.8)	23 (12.4)	7 (3.8)
Nonhematologic				
Diarrhea	112 (38.9)	10 (3.5)	33 (17.7)	1 (0.5)
URT ^b	79 (27.4)	13 (4.5)	31 (16.7)	3 (1.6)
Fatigue	67 (23.3)	9 (3.1)	39 (21.0)	7 (3.8)
Cough	66 (22.9)	1 (0.3)	22 (11.8)	0
Pneumonia	58 (20.1)	45 (15.6)	21 (11.3)	11 (5.9)
Dyspnea	58 (20.1)	11 (3.8)	26 (14.0)	5 (2.7)
Hypertension	31 (10.8)	11 (3.8)	40 (21.5)	17 (9.1)

Data cutoff: January 15, 2026. ^aIncludes TEAEs of any grade that occurred in ≥ 20% of patients and grade 3/4 TEAEs that occurred in ≥ 10% of patients in either treatment arm in the confirmatory analysis group of the safety population, defined as all patients from stages 1 and 2 randomized to 1.0 mg Mezi plus Kd or Kd who received ≥ 1 dose of study treatment; ^bTEAEs were graded per the National Cancer Institute Common Terminology Criteria for Adverse Events version 5.0; ^cExcludes 5 patients who were randomized but not treated; ^dIncludes preferred terms of neutropenia and neutrophil count decrease; ^eIncludes preferred terms of thrombocytopenia and platelet count decrease; URT, upper respiratory tract infection.

- Grade 5 TEAEs were observed in 7.3% (MeziKd) and 4.3% (Kd) of patients, mostly in the context of myeloma progression
- Infections were mostly well managed following standard clinical practice and supportive care with a low incidence of grade 4 events (Table 5)
 - Most infections (68.6% MeziKd; 98.0% Kd) were not associated with grade 3/4 neutropenia
- The incidence of hypogammaglobulinemia was low (10.1% MeziKd; 6.5% Kd)
 - 31.6% of patients in the MeziKd group received ≥ 1 dose of immunoglobulin replacement therapy (IGRT) vs 21.0% in the Kd group
- The incidence of fatal infections was low (2.4% MeziKd; 1.1% Kd)

Table 5. Summary of infections

	MeziKd (N = 288)			Kd (N = 186) ^a		
TEAE, ^a n (%)	Any grade	Grade 3	Grade 4	Any grade	Grade 3	Grade 4
Any infection	210 (72.9)	82 (28.5)	16 (5.6)	100 (53.8)	28 (15.1)	1 (0.5)
URT ^b	79 (27.4)	13 (4.5)	0	31 (16.7)	3 (1.6)	0
Pneumonia	58 (20.1)	39 (13.5)	6 (2.1)	21 (11.3)	10 (5.4)	1 (0.5)
Influenza	30 (10.4)	9 (3.1)	0	18 (9.7)	2 (1.1)	0
COVID-19	29 (10.1)	5 (1.7)	0	11 (5.9)	0	0
RTI	29 (10.1)	7 (2.4)	0	8 (4.3)	0	0
UTI	26 (9.0)	8 (2.8)	0	9 (4.8)	1 (0.5)	0
Nasopharyngitis	17 (5.9)	0	0	18 (9.7)	0	0
Brucellosis	17 (5.9)	6 (2.1)	0	7 (3.8)	0	0

Data cutoff: January 15, 2026. As of December 2024, pneumocystis jirovecii pneumonia prophylaxis was required in both arms. ^aTEAEs that occurred in ≥ 3% of patients in either treatment arm in the confirmatory analysis group of the safety population, defined as all patients from stages 1 and 2 randomized to 1.0 mg Mezi plus Kd or Kd who received ≥ 1 dose of study treatment; ^bExcludes 5 patients who were randomized but not treated; RTI, respiratory tract infection; UTI, urinary tract infection.

Conclusions

- MeziKd showed clinically meaningful PFS benefit with a predictable and manageable safety profile in predominantly triple-class-exposed, anti-CD38 mAb- and LEN-refractory patients
 - MeziKd significantly reduced risk of progression or death by 52% vs Kd (PFS 18.0 vs 8.3 months)
 - This benefit was sustained across all prespecified subgroups, regardless of prior therapy, age, refractory status, cytogenetic risk, or presence of extramedullary disease
 - Neutropenia was the most common grade 3/4 AE, manageable with dose modifications and/or G-CSF
 - Infections were generally well managed following standard clinical practice and supportive care
 - There were no new safety signals
- These data support MeziKd as a potential new standard of care for RRMM that can be easily used across diverse care settings, including community practice

References

- Ramasamy K, et al. *Clin Lymphoma Myeloma Leuk* 2025;25:337-348.
- Mancuso K, et al. *Cancers (Basel)* 2025;17:1168.
- Gay F, et al. *Front Oncol* 2025;15:1550644.
- Watson ER, et al. *Science* 2022;378:549-553.
- Dimopoulos M, et al. *Clin Lymphoma Myeloma Leuk* 2024;24(suppl 2):S258.
- Sandhu I, et al. *Blood* 2024;144(suppl 1):1025.

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