Abstract
P1117

Three-Year Follow-up of Outcomes With KTE-X19 in Patients With Relapsed/Refractory Mantle Cell Lymphoma in ZUMA-2

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BACKGROUND

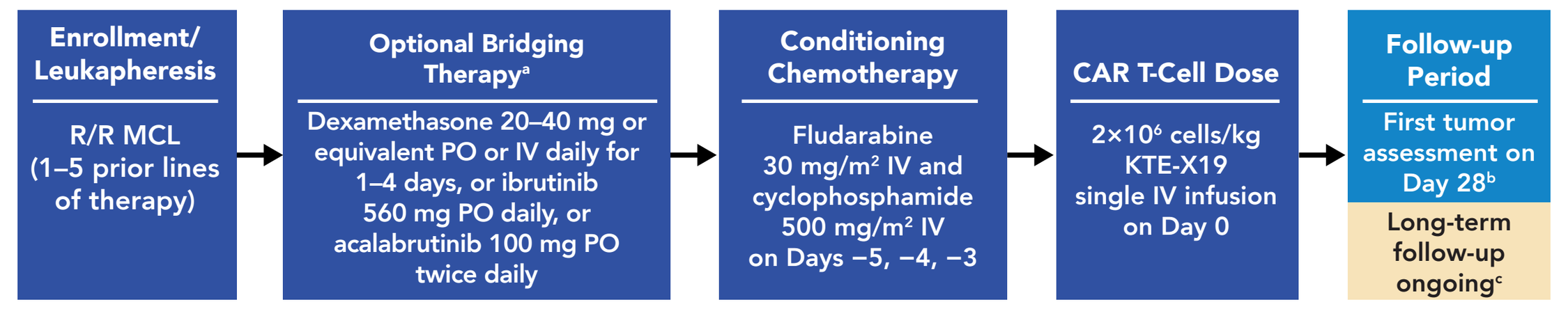
- Relapsed/refractory (R/R) mantle cell lymphoma (MCL) remains an area of high unmet need despite the availability of novel therapies, with low median overall survival (OS; 2.5–14.2 months) in patients who discontinue Bruton tyrosine kinase inhibitors (BTKis)[1-5]
- KTE-X19 (brexucabtagene autoleucel), an autologous anti-CD19 chimeric antigen receptor (CAR) T-cell therapy, is approved in the United States for the treatment of adults with R/R MCL and adults with R/R B-cell acute lymphoblastic leukemia and is approved in the European Union for the treatment of adults with R/R MCL after ≥2 prior treatments including a BTKi[6,7]
- ZUMA-2 (NCT02601313) is a pivotal, single-arm, multicenter, Phase 2 study of KTE-X19 in patients with heavily pretreated MCL who were R/R to a median of 3 prior therapies, including a BTKi[8]
- After a median follow-up of 17.5 months, overall response rate (ORR) in the first 60 efficacy-evaluable patients from ZUMA-2 was 92%, with a complete response (CR) rate of 67%[9]

OBJECTIVES

- To present updated safety and efficacy outcomes in all-treated patients (N=68) after 2 years of additional follow-up since the primary analysis in the ZUMA-2 study of KTE-X19 in R/R MCL
- To present results from an exploratory post hoc assessment of patients previously treated with bendamustine
- To present an exploratory analysis of minimal residual disease (MRD) status in relation to efficacy outcomes

METHODS

Figure 1. ZUMA-2 Phase 2 Study Design[8]



Enrollment/ Leukapheresis
R/R MCL (1–5 prior lines of therapy)
Optional Bridging Therapy[a]
Dexamethasone 20–40 mg or equivalent PO or IV daily for 1–4 days, or ibrutinib 560 mg PO daily, or acalabrutinib 100 mg PO twice daily
Conditioning Chemotherapy
Fludarabine 30 mg/m² IV and cyclophosphamide 500 mg/m² IV on Days −5, −4, −3
CAR T-Cell Dose
2×10⁶ cells/kg KTE-X19 single IV infusion on Day 0
Follow-up Period
First tumor assessment on Day 28[b]
Long-term follow-up ongoing[c]

Key ZUMA-2 Eligibility Criteria
- Age ≥18 years with R/R MCL
- 1–5 prior regimens, including anthracycline- or bendamustine-containing chemotherapy, anti-CD20 monoclonal antibody, and BTKi therapy

Primary Endpoint
- ORR (CR + PR; IRRC assessed per the Lugano classification[10])

Data cutoff date: July 24, 2021
Median follow-up time: 35.6 months (range, 25.9–56.3)

Key Secondary Endpoints
- DOR, PFS, OS
- AEs

Key Exploratory Endpoints
- MRD
- Prior bendamustine

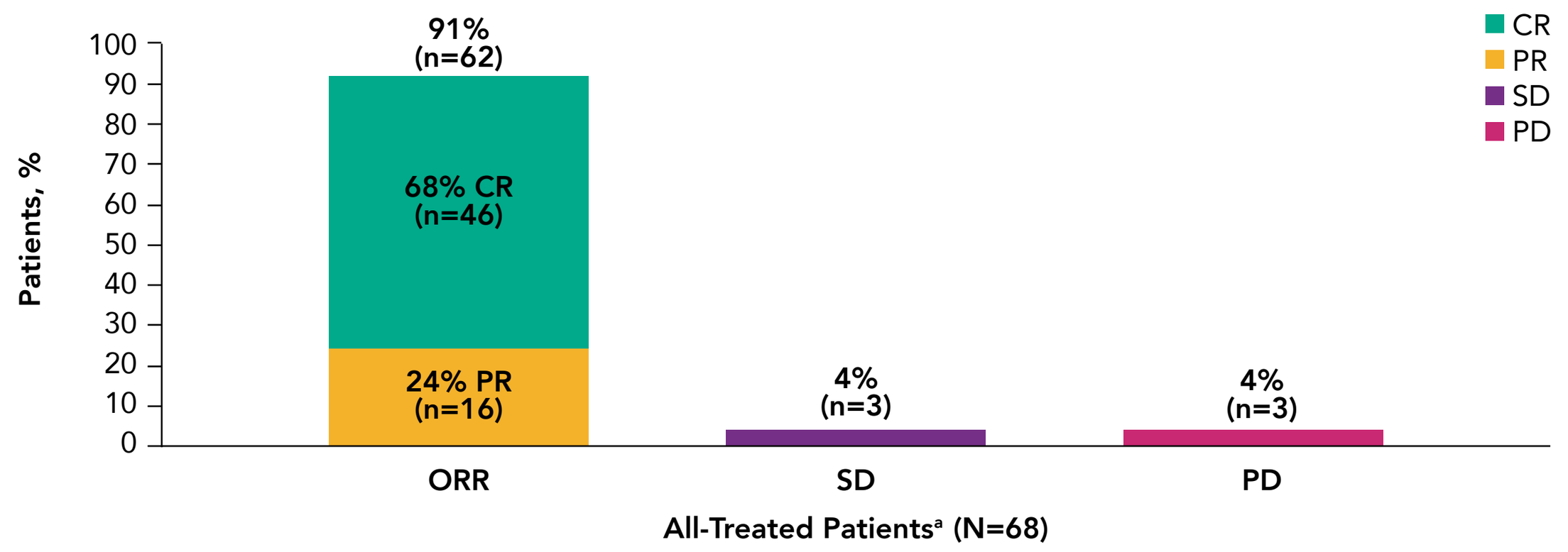
[a] Administered after leukapheresis and completed ≥5 days before initiating conditioning chemotherapy; PET-CT was required post-bridging. [b] Bone marrow biopsy was to be done at screening and, if positive, not done, or indeterminate, a biopsy was needed to confirm CR. [c] After 3 months, only targeted AEs (neurological, hematological, infections, GVHD, autoimmune disorders, and secondary malignancies) were monitored and reported for 15 years after the initial anti-CD19 CAR T-cell infusion or until disease progression or initiation of subsequent anticancer therapy, whichever occurs first.
AE, adverse event; BTKi, Bruton tyrosine kinase inhibitor; CAR, chimeric antigen receptor; CR, complete response; DOR, duration of response; GVHD, graft-versus-host disease; IRRC, independent radiology review committee; IV, intravenous; KTE-X19, brexucabtagene autoleucel; MCL, mantle cell lymphoma; MRD, minimal residual disease; ORR, objective response rate; OS, overall survival; PET-CT, positron emission tomography–computed tomography; PFS, progression-free survival; PO, orally; PR, partial response; R/R, relapsed/refractory.

- Updated efficacy and safety outcomes are reported for all 68 patients treated with KTE-X19 (2×10⁶ CAR T cells/kg)
- The intention-to-treat (ITT) population comprised all enrolled (leukapheresed) patients (N=74)
- MRD was assessed as an exploratory endpoint in patients with available samples at Months 1, 3, and 6 using next-generation sequencing with a sensitivity of 1 in 100,000 cells[8]
- Based on observations that bendamustine-containing treatments may be associated with reduced T-cell number and function, potentially impacting cellular therapies,[11] an exploratory post hoc analysis, including propensity score matching, examined the impact of timing of prior bendamustine exposure

RESULTS

- As of July 24, 2021 (data cutoff), the median follow-up time was 35.6 months (range, 25.9–56.3)
- As previously reported, 74 patients were enrolled and leukapheresed[8]
- KTE-X19 was successfully manufactured for 71 patients (96%) and administered to 68 (92%)[8]
- Baseline characteristics for the all-treated and ITT populations have been reported; high-risk features were common[8]

Figure 2. ORR by IRRC Assessment in All-Treated Patients (N=68)

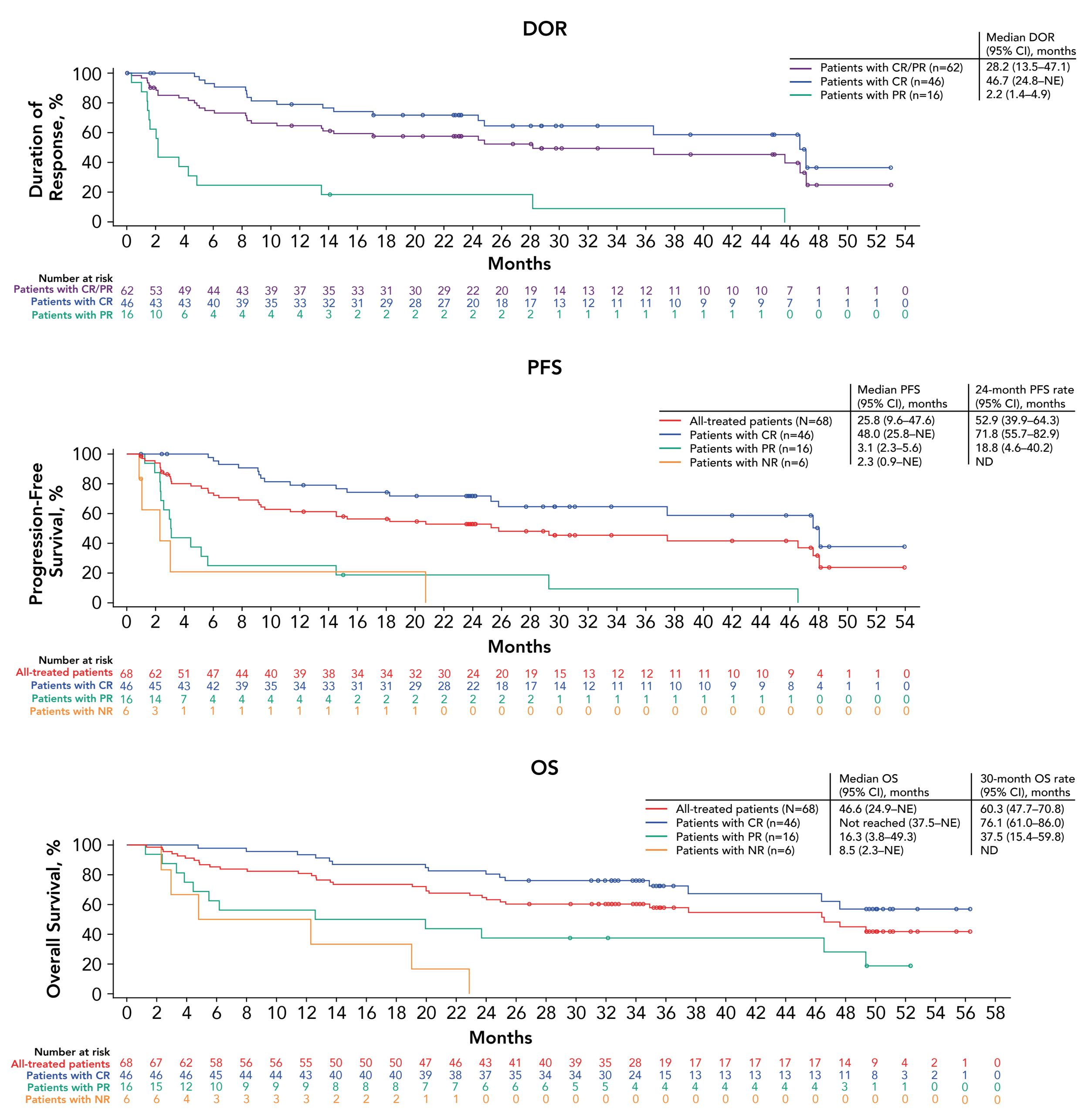


Assessed by an IRRC according to the Lugano Classification.[10]
[a] Since the previous report,[9] IRRC review determined that 1 patient who was previously reported as best response of PR had no disease at baseline; this patient is reported as PD in the current report.
CR, complete response; IRRC, independent radiology review committee; ORR, objective response rate; PD, progressive disease; PR, partial response; SD, stable disease.

- After 35.6 months median follow-up (range, 25.9–56.3), the ORR (CR + partial response [PR]) was 91% (95% CI, 81.8–96.7), with a 68% CR rate (95% CI, 55.2–78.5) in all-treated patients (**Figure 2**)
- In the ITT population, ORR was 84% (95% CI, 73.4–91.3), with a 62% CR rate (95% CI, 50.1–73.2)

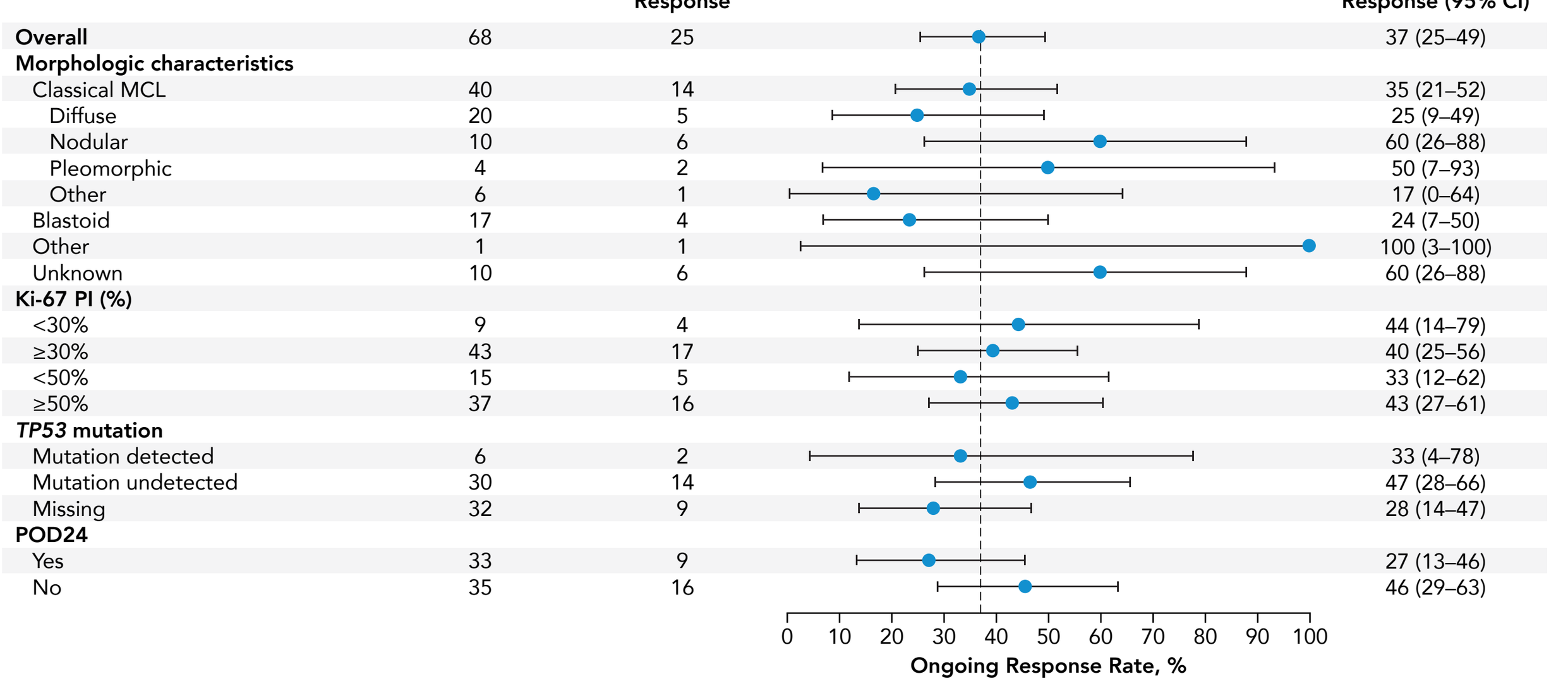
RESULTS *(Continued)*

Figure 3. DOR, PFS, OS, and Subgroup Analysis of Ongoing Response in All-Treated Patients (N=68)



DOR
Duration of Response, %
Median DOR (95% CI), months
Patients with CR/PR (n=62) 28.2 (13.5–47.1)
Patients with CR (n=46) 46.7 (24.8–NE)
Patients with PR (n=16) 2.2 (1.4–4.9)
PFS
Progression-Free Survival, %
Median PFS (95% CI), months
24-month PFS rate (95% CI), months
All-treated patients (N=68) 25.8 (9.6–47.6) 52.9 (39.9–64.3)
Patients with CR (n=46) 48.0 (25.8–NE) 71.8 (55.7–82.9)
Patients with PR (n=16) 3.1 (2.3–5.6) 18.8 (4.6–40.2)
Patients with NR (n=6) 2.3 (0.9–NE) ND
OS
Overall Survival, %
Median OS (95% CI), months
30-month OS rate (95% CI), months
All-treated patients (N=68) 46.6 (24.9–NE) 60.3 (47.7–70.8)
Patients with CR (n=46) Not reached (37.5–NE) 76.1 (61.0–86.0)
Patients with PR (n=16) 16.3 (3.8–49.3) 37.5 (15.4–59.8)
Patients with NR (n=6) 8.5 (2.3–NE) ND
Months
Number at risk
All-treated patients 68 67 62 58 56 56 55 50 50 50 47 46 43 41 40 39 35 28 19 17 17 17 17 17 14 9 4 2 1 0
Patients with CR 46 46 46 45 44 44 43 40 40 40 39 38 37 35 34 34 30 24 15 13 13 13 13 13 11 8 3 2 1 0
Patients with PR 16 15 12 10 9 9 9 8 8 8 7 7 6 6 6 5 5 4 4 4 4 4 4 4 3 1 1 0 0 0
Patients with NR 6 6 4 3 3 3 3 2 2 2 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Subgroup Analysis of Ongoing Response



	No. of Patients	No. of Patients With Ongoing Response	Percent of Patients With Ongoing Response (95% CI)
Overall	68	25	37 (25–49)
Morphologic characteristics			
Classical MCL	40	14	35 (21–52)
Diffuse	20	5	25 (9–49)
Nodular	10	6	60 (26–88)
Pleomorphic	4	2	50 (7–93)
Other	6	1	17 (0–64)
Blastoid	17	4	24 (7–50)
Other	1	1	100 (3–100)
Unknown	10	6	60 (26–88)
Ki-67 PI (%)			
<30%	9	4	44 (14–79)
≥30%	43	17	40 (25–56)
<50%	15	5	33 (12–62)
≥50%	37	16	43 (27–61)
***TP53* mutation**			
Mutation detected	6	2	33 (4–78)
Mutation undetected	30	14	47 (28–66)
Missing	32	9	28 (14–47)
POD24			
Yes	33	9	27 (13–46)
No	35	16	46 (29–63)

CR, complete response; DOR, duration of response; MCL, mantle cell lymphoma; ND, no data; NE, not estimable; NR, no response; OS, overall survival; PI, proliferation index; PFS, progression-free survival; POD24, progression of disease within 2 years; PR, partial response.

- Median OS among treated patients was 46.6 months and was not reached among those who achieved CR (30-month OS rate was 60.3%; **Figure 3**)
- At data cutoff, 25 of 68 treated patients (37%) were still in ongoing response (all CR)
  - Ongoing responses were consistent among prespecified subgroups by high-risk disease characteristics (**Figure 3**)
- Late relapse >24 months post-infusion was infrequent (n=3 patients)
- In the ITT population, median progression-free survival (PFS) was 24.0 months and median OS was 47.4 months (24-month PFS rate, 49%; 30-month OS rate, 56%)

Table 1. Overall AEs and AEs Occurring Since the Primary Analysis Report[8]

	All-Treated Patients (N=68)				
		AEs Occurring Since the Primary Analysis Report			
	Overall Any Grade AEs Occurring Since Infusion	Any Grade	Grade 3	Grade 4	Grade 5
AEs, n (%)					
Any	68 (100)	18 (26)	4 (6)	7 (10)	3 (4)
Any KTE-X19 related	66 (97)	9 (13)	2 (3)	6 (9)	0
Serious AEs, n (%)					
Any	48 (71)	8 (12)	4 (6)	0	3 (4)
Serious KTE-X19 related	37 (54)	2 (3)	2 (3)	0	0
CRS or neurologic events, n (%)	63 (93)	2 (3)	1 (1)	0	0
CRS[a]	62 (91)	0	0	0	0
Neurologic events	43 (63)	2 (3)	1 (1)[b]	0	0
Serious neurologic event	22 (32)	1 (1)	1 (1)[b]	0	0
Cytopenias, n (%)					
Thrombocytopenia	50 (74)	2 (3)	0	2 (3)	0
Neutropenia	59 (87)	8 (12)	1 (1)	7 (10)	0
Anemia	47 (69)	3 (4)	2 (3)	0	0
Infection, n (%)					
Any	36 (53)	7 (10)	3 (4)	0	1 (1)
Serious	21 (31)	4 (6)	3 (4)	0	1 (1)
COVID-19–associated viral	0	0	0	0	0
Non–COVID-19 associated viral	11 (16)	3 (4)	1 (1)	0	0
Hypogammaglobulinemia, n (%)	14 (21)	1 (1)	0	0	0
Tumor lysis syndrome, n (%)	1 (1)	0	0	0	0

Data cutoff for the primary analysis was July 19, 2019 (median follow-up was 12.3 months)[8]; data cutoff for the present analysis was July 24, 2021. Numbers (percentage) of patients with worst grade of AE are shown; AEs occurring after retreatment are not included. [a] CRS events were graded per revised Lee et al. 2014 grading system[12]; all other AEs were graded per Common Terminology Criteria for Adverse Events version 4.03. [b] This serious neurologic event of encephalopathy began on day 397; the event resolved on day 408 and was considered unrelated to KTE-X19.
AE, adverse event; CRS, cytokine release syndrome; KTE-X19, brexucabtagene autoleucel.

- No new safety signals were observed with longer follow-up
- Since the time of the primary analysis report[8]
  - Only 3% of all adverse events (AEs) of interest on study occurred since the primary analysis
  - Grade ≥3 serious AEs occurred in 7 patients (10%; **Table 1**)
    - One patient had serious Grade 3 encephalopathy (13.0 months post-infusion) that was considered unrelated to KTE-X19
    - Two patients had KTE-X19–related serious AEs: 1 patient with Grade 3 pneumonia and Grade 3 upper respiratory tract infection, and 1 with Grade 3 influenza, indicating that infectious disease may have been observed with longer follow-up
    - There were 3 new Grade 5 AEs (none considered related to KTE-X19): salmonella bacteremia (24.9 months post-infusion) and 2 secondary malignancies (myelodysplastic syndrome and acute myeloid leukemia; 25.2 and 37.5 months post-infusion, respectively)
- There were no secondary malignancies or replication-competent retrovirus cases related to KTE-X19 at any time on study

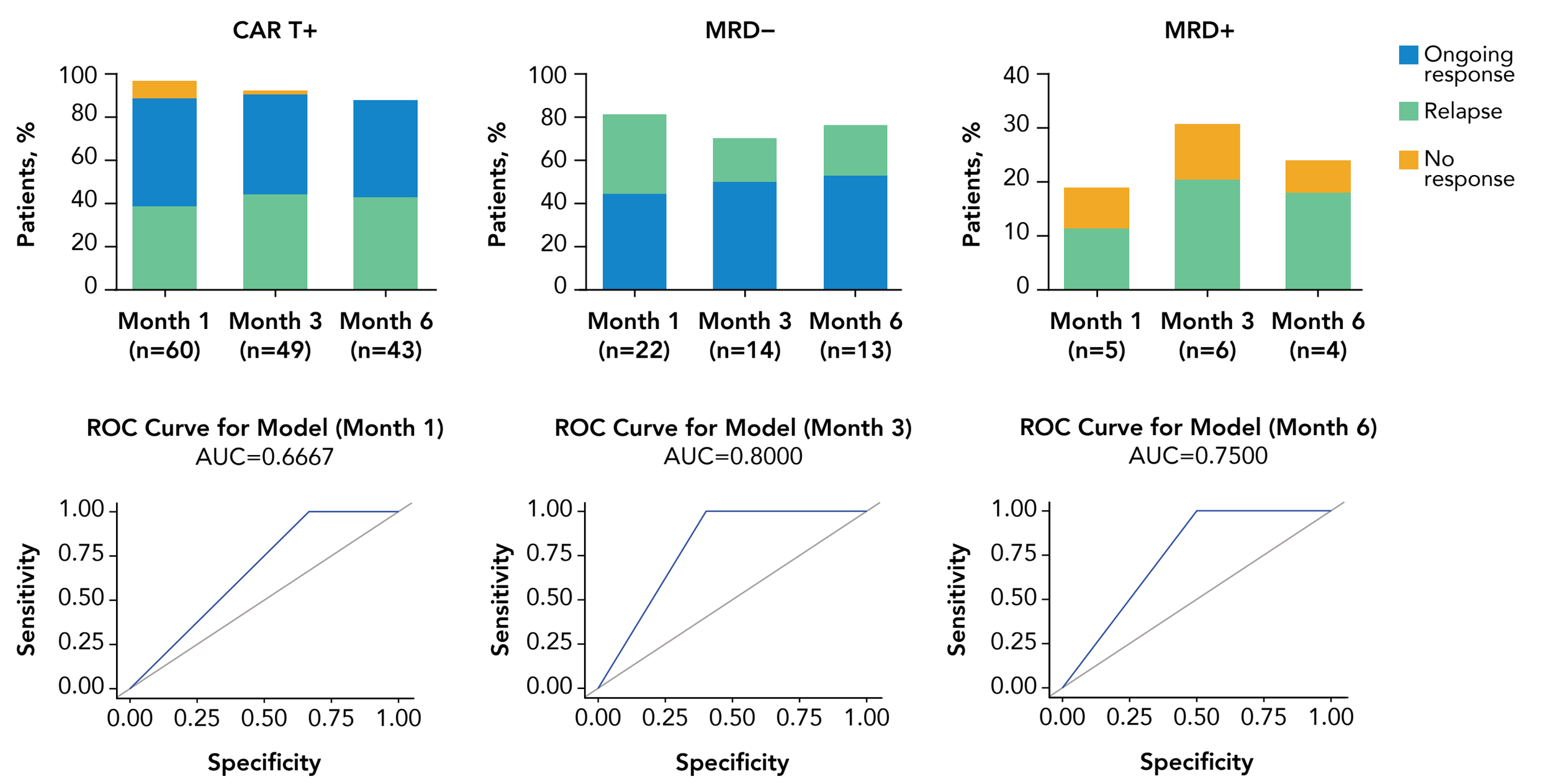
Table 2. Efficacy and Durability Outcomes in Patients by MRD Status

	N	ORR, n (%)	CR, n (%)	PR, n (%)	SD, n (%)	PD, n (%)	mDOR, mo (95% CI) [n]	mPFS, mo (95% CI) [n]	mOS, mo (95% CI) [n]
MRD status at Month 6									
Positive	4	3 (75)	2 (50)	1 (25)	0 (0)	1 (25)	6.1 (5.4–NE) [3]	7.1 (0.9–NE) [4]	27.0 (13.5–NE) [4]
Negative	15	15 (100)	14 (93)	1 (7)	0	0	NR (10.4–NE) [15]	NR (11.3–NE) [15]	NR (46.4–NE) [15]

IRRC review determined that one patient who was previously reported as best response of PR had no disease at baseline; this patient is reported as PD in the current report.
CR, complete response; IRRC, independent radiology review committee; mDOR, median duration of response; mOS, median overall survival; mPFS, median progression-free survival; mo, month; MRD, minimal residual disease; NE, not estimable; NR, not reached; ORR, objective response rate; PD, progressive disease; PR, partial response; SD, stable disease.

- At Month 6, there were 19 MRD-assessable patients (**Table 2**)
  - Of the 15 MRD-negative patients (79%), the ORR was 100%
- At data cutoff, 60% of MRD-negative patients remained in ongoing response, with duration of response (DOR), PFS, and OS medians not yet reached

Figure 4. MRD Detection at 3 and 6 Months Predicts Relapse

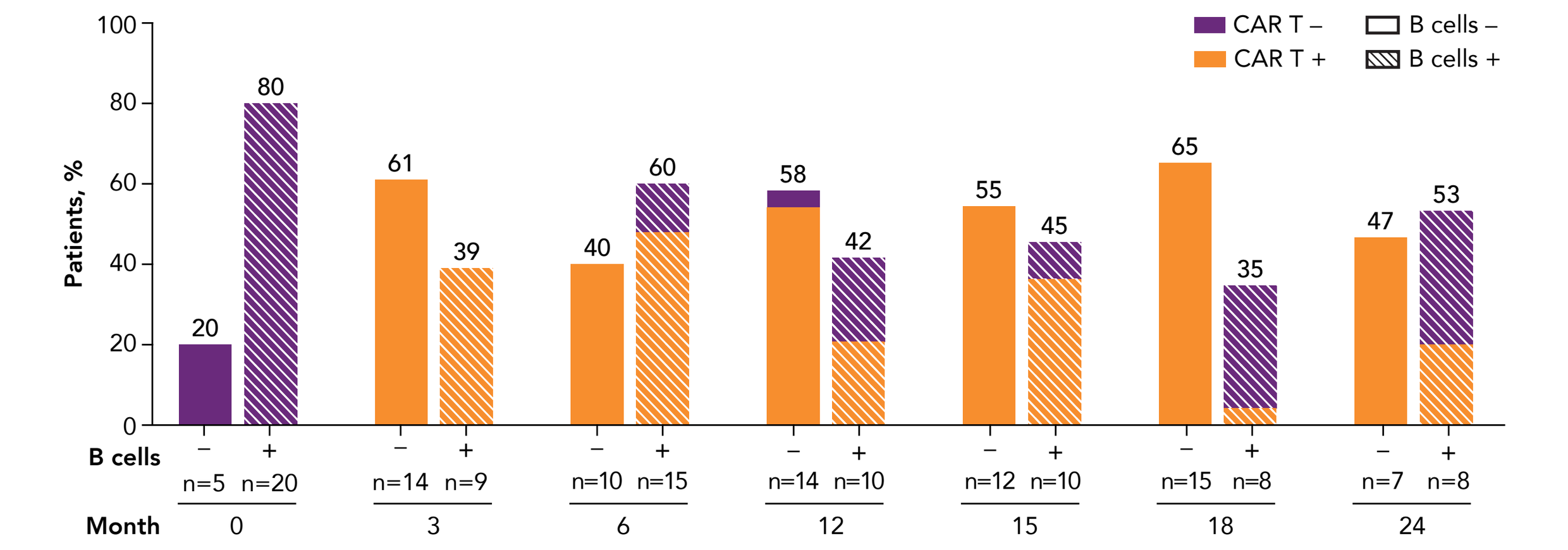


CAR T+
MRD−
MRD+
Ongoing response
Relapse
No response
Patients, %
Month 1 (n=60)
Month 3 (n=49)
Month 6 (n=43)
Month 1 (n=22)
Month 3 (n=14)
Month 6 (n=13)
Month 1 (n=5)
Month 3 (n=6)
Month 6 (n=4)
ROC Curve for Model (Month 1) AUC=0.6667
ROC Curve for Model (Month 3) AUC=0.8000
ROC Curve for Model (Month 6) AUC=0.7500
Sensitivity
Specificity

AUC, area under the curve; CAR, chimeric antigen receptor; MRD, minimal residual disease; ROC, receiver operating characteristics.

- MRD-negative status at Months 1, 3, and 6 was associated with durable response, with 55%, 71%, and 69% of MRD-negative patients at those timepoints remaining in ongoing CR at data cutoff (median follow-up, 35.6 months; **Figure 4**)
- Receiver operating characteristic curves of true-positive (sensitivity) versus false-positive (specificity) rates were analyzed for MRD predictability of relapse and nonresponse (**Figure 4**)
  - Analysis of MRD at Months 3 and 6 was found to be predictive of relapse potential (AUC 0.80 and 0.75, respectively)

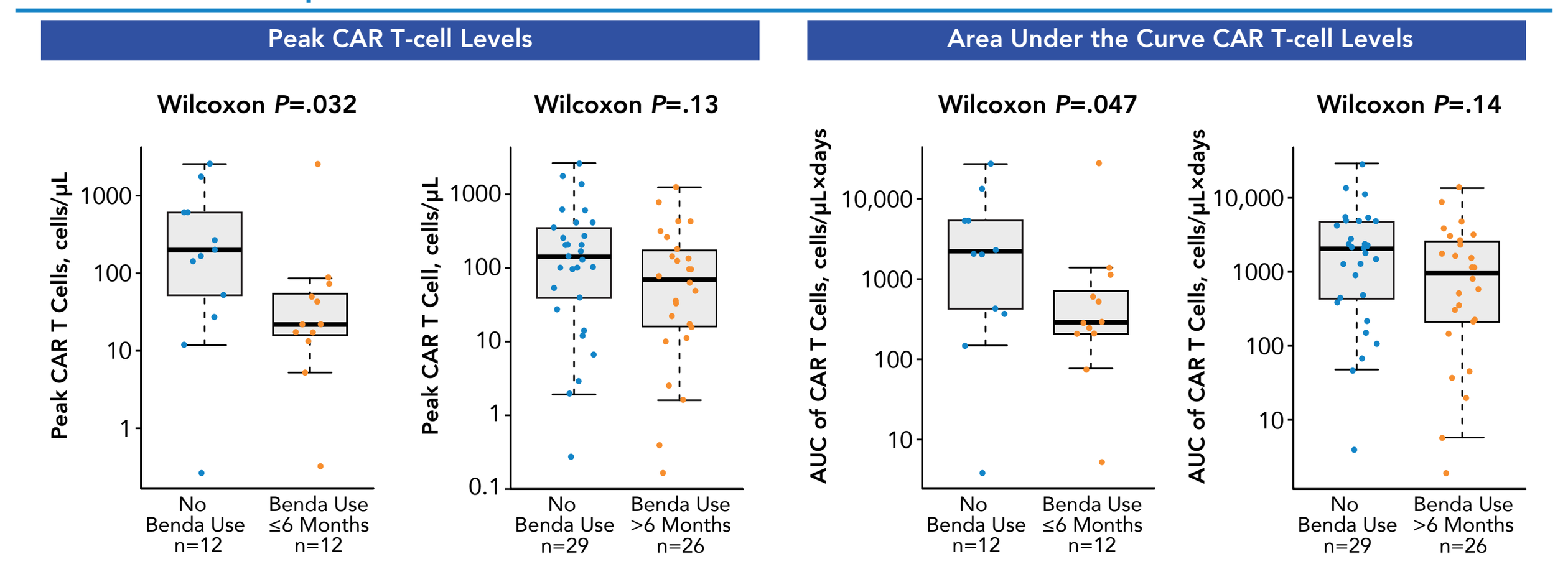
Figure 5. Detectable Anti-CD19 CAR T Cells and B Cells in Patients With Ongoing Response



CAR, chimeric antigen receptor.

- Among evaluable patients in ongoing response at Months 18 and 24, B cells were detectable in 35% and 53%, and gene-marked CAR T cells were detectable in 70% and 67%, respectively (**Figure 5**)

Figure 6. Comparison of Pharmacokinetics of Patients With and Without Prior Bendamustine Exposure



Peak CAR T-cell Levels
Area Under the Curve CAR T-cell Levels
Wilcoxon P=.032
Wilcoxon P=.13
Wilcoxon P=.047
Wilcoxon P=.14
Peak CAR T Cells, cells/µL
AUC of CAR T Cells, cells/µL×days
No Benda Use n=12
Benda Use ≤6 Months n=12
No Benda Use n=29
Benda Use >6 Months n=26

AUC, area under the curve; Benda, bendamustine; CAR, chimeric antigen receptor.

- Over half of treated patients in ZUMA-2 (n=37 [54%]) received prior bendamustine[9] and strong outcomes continue to be observed in the ZUMA-2 patient population
  - Median time from last bendamustine exposure to KTE-X19 infusion was 20.9 months (range, 1.0–70.3)
- An exploratory analysis in all evaluable patients estimated the impact of timing of bendamustine (≤6 months and >6 months before CAR T-cell infusion) on outcomes and product attributes (**Figure 6**)
  - Peak and AUC CAR T-cell levels were significantly lower in patients with prior bendamustine use within 6 months of CAR T-cell infusion, compared with levels in patients with no prior bendamustine use. Results were consistent when analyzed using propensity score matching
- The observations from this small exploratory post hoc analysis may indicate that patients being treated with KTE-X19 could benefit from longer time spans between prior bendamustine and cell therapy, though further analyses are warranted

CONCLUSIONS

- These 3-year ZUMA-2 follow-up data demonstrate that a single infusion of KTE-X19 resulted in high rates of durable responses in R/R MCL
  - Median DOR was 28.2 months; median OS was 46.6 months and was not reached among those who achieved CR
- Long-term safety was manageable, with only 3% of AEs of interest occurring during this longer follow-up, few late-onset events, and no new CRS
- DOR, PFS, and OS were not reached in patients with MRD-negativity at 6 months, suggesting MRD-negativity may predict for a longer response duration, although sample size of this exploratory analysis was limited and further investigation is warranted
- Results of an exploratory post hoc analysis suggest that bendamustine use shortly before leukapheresis requires careful consideration due to its potential effects on patient T-cell fitness and CAR T-cell expansion
  - Although a majority of patients (54%) in the overall ZUMA-2 population had prior bendamustine, it may be advantageous to consider administering the potentially curative therapy KTE-X19 after an extended period following bendamustine exposure, in order to obtain a quality immune response and maximize the benefit of KTE-X19
- Collectively, these findings confirm the durable benefits of KTE-X19 and support future investigations of CD19-directed CAR T-cell therapy in patients with high-risk MCL in earlier treatment lines
- Additional studies aimed at understanding mechanisms of relapse are ongoing

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ACKNOWLEDGMENTS

- The patients, families, friends, and caregivers
- The study investigators, coordinators, and healthcare staff at each study site
- Anne Kerber, formerly employed by Kite, and Saran Vardhanabhuti of Kite for their contributions to the study
- Medical writing support was provided by Nexus Global Group Science, funded by Kite
- This study was funded by Kite

DISCLOSURES

MLW: honoraria from Janssen, Acerta Pharma, OMI, Physicians' Education Resources, Dava Oncology, CAHON, Hebei Cancer Prevention Federation, Clinical Care Options, Mumbai Hematology Group, Anticancer Association, Newbridge Pharmaceuticals; consultancy or advisory role for InnoCare, Loxo Oncology, Juno, Oncternal, CStone, AstraZeneca, Janssen, VelosBio, Pharmacyclics, Genentech, Bayer Healthcare; research funding from Kite, Pharmacyclics, Janssen, AstraZeneca, Celgene, Loxo Oncology, Juno, BioInvent, VelosBio, Acerta Pharma, Oncternal, Verastem, Molecular Templates, Lilly, InnoCare. **JM:** honoraria from Targeted Oncology, OncView, Curio, Kyowa Kirin, Physicians' Education Resource, and Seagen; consultancy or advisory role for Pharmacyclics/AbbVie, Bayer, Kite, Pfizer, Janssen, Juno/Celgene, Bristol Myers Squibb, Kyowa Kirin, Alexion, Fosun Kite, Innovent, Seagen, Debiopharm, Karyopharm, Genmab, ADC Therapeutics, Epizyme, BeiGene, and Servier; speakers' bureau participation for Kite, Kyowa Kirin, Bayer, Pharmacyclics/Janssen, Seagen, Acrotech/Aurobindo, BeiGene, Verastem, AstraZeneca, Celgene/Bristol Myers Squibb, Genentech/Roche; and research funding (paid to institution) from Bayer, Gilead, Kite, Celgene, Merck, Portola Pharmaceuticals, Incyte, Genentech, Pharmacyclics, Seagen, Janssen, and Millennium. **AG:** employment with Regional Cancer Care Associates/OMI; leadership role at COTA (Cancer Outcome Tracking Analysis) and Genomic Testing Cooperative; stock or other ownership in COTA and Genomic Testing Cooperative; honoraria from Celgene, Elsevier PracticeUpdate: Oncology, Kite, AstraZeneca, Xcenda, OncLive Peer Exchange, Janssen, Novartis, MorphoSys, Incyte, and Pharmacyclics, Bristol Myers Squibb and Vincerx; consultancy or advisory role for Physicians' Education Resource, Celgene, Elsevier PracticeUpdate: Oncology, Janssen, Kite, Medscape, Michael J. Hennessy Associates, Inc., Novartis, Bristol Myers Squibb, AbbVie, and Pharmacyclics; research funding from Acerta, AstraZeneca, Celgene, Genentech, Hoffmann-La Roche, Infinity Pharmaceuticals, Janssen, Karyopharm, and Pharmacyclics; and other relationships with MorphoSys, Incyte Steering Committee, AstraZeneca MCL Steering Committee, and Vincerx-Scientific Advisory Board. **FLL:** consultancy or advisory role for ecoR1, Emerging Therapy Solutions Gerson Lehman Group, Kite, Novartis, Amgen, Celgene/Bristol Myers Squibb, GammaDelta Therapeutics, Iovance, Janssen, Legend Biotech, bluebird bio, Wugen Inc., Calibr, Cellular Biomedicine Group Inc., Umoja, Cowen and Allogene; research support from Kite, Novartis, and Allogene; and patents, royalties, other intellectual property from several patents held by the institution in my name (unlicensed) in the field of cellular immunotherapy. **CAJ:** honoraria from Kite, Celgene, Novartis, bluebird bio, Epizyme, Humanigen, Pfizer, Precision BioSciences, Nkarta, Lonza, and AbbVie; consultancy or advisory role for Kite, Celgene, Novartis, Pfizer, Humanigen, Precision BioSciences, Nkarta, Lonza, Pfizer, Ispen and AbbVie; speakers' bureau participation for Axis and Clinical Care Options; research funding from Pfizer; and travel support from Kite, Celgene, Novartis, Precision Biosciences, Lonza, Pfizer, and Humanigen. **BTH:** honoraria from Kite; consultancy or advisory role for Kite; research funding from Kite; and travel support from Kite. **JMT:** stock or other ownership in Genmab, Corvus, Marker Therapeutics, TG Therapeutics and bluebird bio; consultancy or advisory role for Kite; and research funding from Bristol Myers Squibb, Kite, Spectrum Pharmaceuticals, and Merck. **HH:** leadership role at Exuma Biotech; honoraria from Kite, Dova, Karyopharm, Rigel, Celgene, and Janssen; consulting for Kite and Karyopharm; speakers' bureau for Kite, Rigel, Karyopharm, and Seagen; research funding from Kite, Bristol Myers Squibb, Novartis, Caribou, Adicet Bio, Autolus, Incyte, Genentech, Viracta, and ADC Therapeutics. **IWF:** employment with Sarah Cannon Research Institute; stock or other ownership in Johnson & Johnson; consultancy or advisory role for AbbVie, AstraZeneca, BeiGene, Genentech, Gilead, Great Point Partners, Hutchison MediPharma, Iksuda Therapeutics, Janssen, Juno Therapeutics, Kite, MorphoSys, Novartis, Nurix Therapeutics, Pharmacyclics, Roche, Seagen, Takeda, TG Therapeutics, Unum Therapeutics (Cogent Biosciences), Verastem, Vincerx Pharma and Yingli Pharmaceuticals; and research funding from AbbVie, Acerta Pharma, Agios, ArQule, AstraZeneca, BeiGene, Calithera Biosciences, Celgene, Constellation Pharmaceuticals, Curis, Forma Therapeutics, Forty Seven, Genentech, Gilead Sciences, IGM Biosciences, Incyte, Infinity Pharmaceuticals, Janssen, Juno Therapeutics, Karyopharm Therapeutics, Kite, Loxo Oncology, Merck, MorphoSys, Novartis, Pfizer, Pharmacyclics, Portola Pharmaceuticals, Rhizen Pharmaceuticals, Roche, Seagen, Takeda, Teva, TG Therapeutics, Trillium Therapeutics, Triphase Research & Development Corp., Unum Therapeutics (Cogent Biosciences), and Verastem. **DBM:** consultancy or advisory role for Kite, Novartis, Juno-Celgene-Bristol Myers Squibb, Allogene, Precision Bioscience, Adicet, Pharmacyclics, Janssen, Takeda, Adaptive Biotechnologies, Miltenyi Biotechnologies; research funding from Kite, Novartis, Juno-Celgene-Bristol Myers Squibb, Allogene, Precision Biosciences, Adicet, Adaptive Biotechnologies; and patents, royalties, or other intellectual property from Pharmacyclics. **JMP:** consultancy or advisory role for Kite, AstraZeneca, MorphoSys/Incyte, Epizyme and Actinium. **MJK:** honoraria from Kite, Novartis, Miltenyi Biotech, Roche, and Bristol Myers Squibb/Celgene; consultancy or advisory role for Kite, Roche, Novartis, Bristol Myers Squibb/Celgene, and Miltenyi Biotech; research funding from Kite, Roche, Takeda, and Celgene; and travel support from Kite, Novartis, and Miltenyi Biotech. **RH:** honoraria from Bristol Myers Squibb, MSD, Gilead, Kite, Roche, Novartis, Celgene, Janssen and ADC Therapeutics; and consultancy or advisory role for Kite. **AB:** honoraria from Kite; speakers' bureau participation for Kite; and research funding from Kite, Autolus, and Atara. **WP, XF, RS, and IK:** employment with Kite; stock or other ownership in Gilead. **RRS:** employment with Kite and Atara; leadership role with Kite and Atara; stock or other ownership in Kite and Atara; and patents, royalties and other intellectual property from Kite and Atara. **PMR:** consultancy or advisory role for Kite, and Curis; and research funding from Seagen and Genentech.

Presented at the 2022 European Hematology Association Annual Meeting