Treatment Patterns and Clinical Outcomes Among Patients With Treatment-Naïve and Relapsed/Refractory Mantle Cell Lymphoma in Community Practice Between 2020 and 2025

MCL - 1296

Javier Munoz,[1] Xiaoliang Wang,[2] Dong Yuan,[2] Qianhong Fu,[2] Gregory Maglinte,[2] Erlene K. Seymour,[2] Yucai Wang[3]

[1]Mayo Clinic, Phoenix, AZ, USA; [2]BeOne Medicines Ltd., San Carlos, CA, USA; [3]Mayo Clinic, Rochester, MN, USA

CONCLUSIONS

- Treatment patterns for MCL are rapidly evolving, with increasing 1L BTKi use in community practice
- Transplants were uncommon and CAR T-cell therapy remained low in this population, while use of B-cell lymphoma 2 inhibitor and lenalidomide-containing regimens was higher in the relapsed/refractory setting
- Survival outcomes were better than historical data for post-covalent BTKi relapsed/refractory MCL,[4] potentially reflecting advances in the treatment landscape

INTRODUCTION

- First-line (1L) treatment for mantle cell lymphoma (MCL) often involves chemoimmunotherapy (CIT), with covalent Bruton tyrosine kinase inhibitors (BTKis) recommended for the second-line (2L) treatment setting
- However, contemporary real-world treatment patterns may have evolved in recent years following the publication of landmark trials such as TRIANGLE, ECHO, and ENRICH[1–3]

METHODS

- This retrospective study utilized the US Integra PrecisionQ database to identify adults with MCL receiving 1L, 2L, or third-line (3L) treatment for MCL between January 1, 2020, and August 31, 2025
  - Line-of-therapy (LOT) cohorts were not mutually exclusive: patients could be included in multiple LOT cohorts if they met the inclusion and exclusion criteria
- The index date was defined as the treatment initiation date for the index LOT for each cohort
- Follow-up was from the index date until the earliest of end of follow-up, death, or study end
- For treatment patterns, number and frequency by treatment regimen in each LOT cohort were summarized descriptively
- Clinical outcomes in each LOT cohort were real-world time to next treatment or death (rwTTNT) and real-world overall survival (rwOS) from index date
  - Median time to events and landmark probabilities at 12 and 24 months were estimated using Kaplan–Meier methods
- Subgroup analysis was conducted for patients who received prior covalent BTKi therapy in the 2L and 3L cohorts

RESULTS

Baseline Characteristics

- A total of 2162, 860, and 363 US patients with MCL were included in the 1L, 2L, and 3L cohorts, respectively (**Table 1**)
- Biomarker testing (*TP53* and Ki67) was not common or well captured (~5% tested)

Treatment Patterns

- In 1L, chemotherapy/CIT was most common (51.4%), followed by BTKi monotherapy (13.4%) and other BTKi-containing regimens (BTKi + chemotherapy/CIT, 7.4%; BTKi + rituximab, 7.3%) (**Figure 1**)
- In 2L, common regimens included BTKi monotherapy (28.7%), chemotherapy/CIT (22.7%), and BTKi + rituximab (15.8%)
- In 3L, BTKi monotherapy (22.0%) and chemotherapy/CIT (20.9%) remained common, followed by lenalidomide-based regimens (12.1%)
- High-intensity chemotherapy/CIT was uncommon (1L, 3.5%; 2L, 3.7%; 3L, 1.4%). Venetoclax-based regimens were uncommon in 1L (4.0%) and increased in 2L (11.7%) and 3L (13.5%). Transplant and chimeric antigen receptor (CAR) T-cell therapy were uncommon across all cohorts (<4%)

Clinical Outcomes Overall

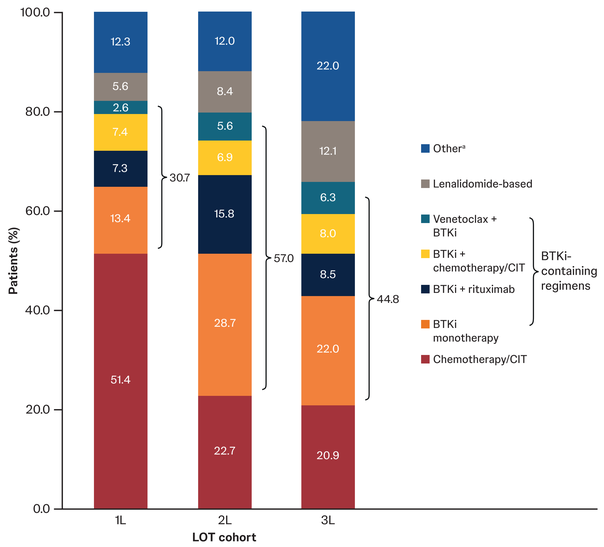
- Median rwTTNT was 35.0 months (95% confidence interval [CI], 31.7-39.3) in 1L, 19.6 months (95% CI, 15.3-23.4) in 2L, and 11.4 months (95% CI, 9.4-14.3) in 3L (**Figure 2A-C**)
- Median rwOS was not estimable (NE) in 1L (95% CI, NE-NE), 58.7 months (95% CI, 45.1-NE) in 2L, and 36.2 months (95% CI, 21.4-47.8) in 3L (**Figure 3A-C**)

Table 1. Baseline Characteristics by LOT Cohort

Characteristic	1L (n=2162)	2L (n=860)	3L (n=363)
Age at index date, median (IQR), years	72 (65.0-79.0)	72 (65.0-79.0)	74 (65.0-80.0)
Sex, n (%)			
Male	1519 (70.3)	623 (72.4)	274 (75.5)
Female	641 (29.6)	237 (27.6)	88 (24.2)
Missing	2 (0.1)	0	1 (0.3)
Race, n (%)			
White	1440 (66.6)	616 (71.6)	271 (74.7)
Other[a]	722 (33.4)	244 (28.4)	92 (25.3)
Stage at initial MCL diagnosis, n (%)			
I-II	132 (6.1)	48 (5.6)	18 (5.0)
III-IV	1030 (47.6)	462 (53.7)	216 (59.5)
Unknown	1 (0.05)	1 (0.1)	0
Not documented	999 (46.2)	349 (40.6)	129 (35.5)
ECOG PS at index date, n (%)			
0 or 1	1275 (59.0)	514 (59.8)	204 (56.2)
2, 3, or 4	200 (9.3)	75 (8.7)	41 (11.3)
Unknown	687 (31.8)	271 (31.5)	118 (32.5)
Length of follow-up from index date, median (IQR), months	16.85 (5.88-34.69)	12.5 (4.0-29.1)	11.7 (3.0-25.1)

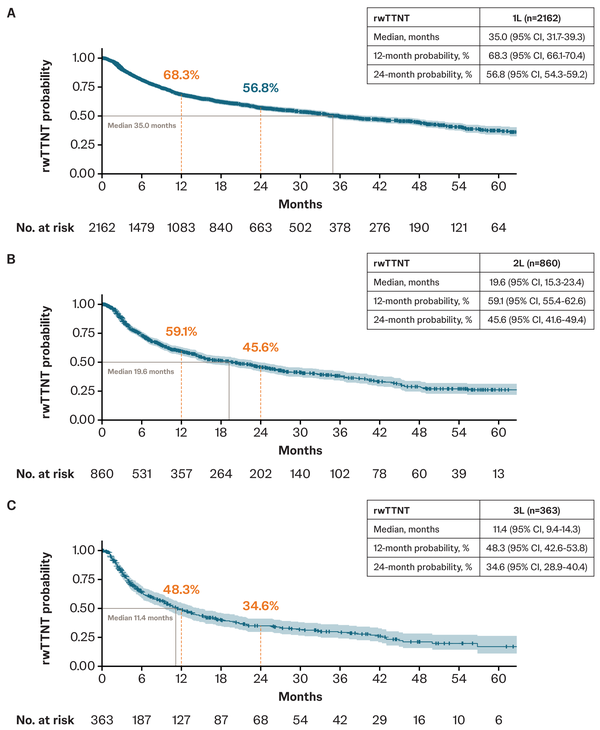
[a]Other includes Black or African American, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and 'Other' as reported in the source data.
Abbreviations: 1L, first line; 2L, second line; 3L, third line; ECOG PS, Eastern Cooperative Oncology Group performance status; IQR, interquartile range; LOT, line of therapy; MCL, mantle cell lymphoma.

Figure 1. Treatment Patterns by LOT Cohort



[a]Bortezomib-based regimens, CAR T-cell therapy, venetoclax combination regimens, and venetoclax monotherapy were each <5% in each LOT cohort.
Abbreviations: 1L, first line; 2L, second line; 3L, third line; BTKi, Bruton tyrosine kinase inhibitor; CAR, chimeric antigen receptor; CIT, chemoimmunotherapy; LOT, line of therapy.

Figure 2. Kaplan–Meier Plots of Real-World Time to Next Treatment by LOT Cohort: (A) 1L, (B) 2L, and (C) 3L



rwTTNT	1L (n=2162)
Median, months	35.0 (95% CI, 31.7-39.3)
12-month probability, %	68.3 (95% CI, 66.1-70.4)
24-month probability, %	56.8 (95% CI, 54.3-59.2)

rwTTNT	2L (n=860)
Median, months	19.6 (95% CI, 15.3-23.4)
12-month probability, %	59.1 (95% CI, 55.4-62.6)
24-month probability, %	45.6 (95% CI, 41.6-49.4)

rwTTNT	3L (n=363)
Median, months	11.4 (95% CI, 9.4-14.3)
12-month probability, %	48.3 (95% CI, 42.6-53.8)
24-month probability, %	34.6 (95% CI, 28.9-40.4)

Abbreviations: 1L, first line; 2L, second line; 3L, third line; CI, confidence interval; LOT, line of therapy; rwTTNT, real-world time to next treatment or death.

Clinical Outcomes Among Patients With Immediate Prior cBTKi

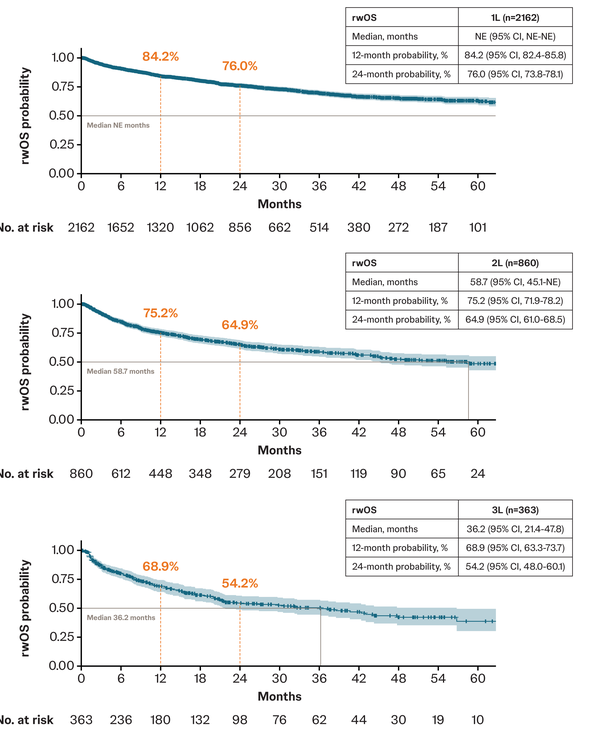
- Among patients in the 2L cohort with prior covalent BTKi (n=217), median rwTTNT was 26.2 months (95% CI, 14.3-36.6) and median rwOS was NE (95% CI 48.9-NE) (**Table 2**)
- For those in the 3L cohort with prior covalent BTKi (n=145), median rwTTNT was 11.3 months (95% CI 7.3-14.3) and median rwOS was 29.7 months (95% CI 17.3-NE)

Table 2. Clinical Outcomes Among Patients With Immediate Prior Covalent BTKi Therapy

Outcome	2L (prior cBTKi in 1L) (n=217)	3L (prior cBTKi in 2L) (n=145)
rwTTNT		
Median, months	26.2 (14.3-36.6)	11.3 (7.3-14.3)
12-month probability, %	60.2 (52.5-67.0)	48.2 (38.8-56.9)
24-month probability, %	51.0 (43.0-58.5)	25.6 (17.4-34.7)
rwOS		
Median, months	NE (48.9-NE)	29.7 (17.3-NE)
12-month probability, %	77.8 (70.9-83.3)	70.7 (61.7-77.9)
24-month probability, %	72.0 (64.2-78.4)	52.0 (41.6-61.4)

Data in parentheses are 95% CI.
Abbreviations: 1L, first line; 2L, second line; 3L, third line; cBTKi, covalent Bruton tyrosine kinase inhibitor; CI, confidence interval; LOT, line of therapy; NE, not estimable; rwOS, real-world overall survival; rwTTNT, real-world time to next treatment or death.

Figure 3. Kaplan–Meier Plots of Real-World Overall Survival by LOT Cohort: (A) 1L, (B) 2L, and (C) 3L



rwOS	1L (n=2162)
Median, months	NE (95% CI, NE-NE)
12-month probability, %	84.2 (95% CI, 82.4-85.8)
24-month probability, %	76.0 (95% CI, 73.8-78.1)

rwOS	2L (n=860)
Median, months	58.7 (95% CI, 45.1-NE)
12-month probability, %	75.2 (95% CI, 71.9-78.2)
24-month probability, %	64.9 (95% CI, 61.0-68.5)

rwOS	3L (n=363)
Median, months	36.2 (95% CI, 21.4-47.8)
12-month probability, %	68.9 (95% CI, 63.3-73.7)
24-month probability, %	54.2 (95% CI, 48.0-60.1)

Abbreviations: 1L, first line; 2L, second line; 3L, third line; CI, confidence interval; LOT, line of therapy; NE, not estimable; rwOS, real-world overall survival.

REFERENCES

1. Dreyling M, et al. *Lancet.* 2024;403:2293-2306.
2. Wang M, et al. *J Clin Oncol.* 2025;43:2276-2284.
3. Lewis DJ, et al. *Lancet.* 2025;406:1953-1968.
4. Hess G, et al. *Br J Haematol.* 2023;202:749-759.

DISCLOSURES

JM: Reports research funding from Bayer, BeOne, Celgene, Genentech, Gilead/Kite, Incyte, Janssen, Merck, Millennium, Novartis, Pharmacyclics, Portola, and Seattle Genetics; consulting fees from ADC Therapeutics, Alexion, AstraZeneca, Aurobindo, Bayer, BeOne, Celgene/BMS, Eli Lilly, Epizyme, Fosunkite, Genentech/Roche, Genmab, Genzyme, Gilead/Kite, Janssen, Karyopharm, Kyowa, MEI, Morphosys/Incyte, Novartis, Pfizer, Pharmacyclics/AbbVie, Seattle Genetics, TG Therapeutics, and Verastem; and payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from Curio, OncView, Physicians' Education Resource, and Targeted Oncology.

FUNDING

This study was funded by BeOne Medicines, Ltd.

ACKNOWLEDGMENTS

Medical writing support, under the direction of the authors, was provided by Allison Michaelis, PhD, of Twist Medical, and supported by BeOne Medicines, Ltd.

CORRESPONDENCE: Javier Munoz, javier.munoz@me.com

Presented at SOHO 2026; September 9–12, 2026; Houston, TX, USA