Outcomes During BTKi Treatment for Chronic Lymphocytic Leukemia: Insights From Remote Therapeutic Monitoring

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CONCLUSIONS

- Understanding the patient's experience while undergoing treatment enables timely and targeted management of patient symptoms and can optimize quality of life
- Results from the Canopy RTM platform suggest that patients diagnosed with CLL/SLL who were BTKi-naïve and newly treated with zanubrutinib generally reported fewer symptoms than those treated with acalabrutinib, regardless of treatment duration

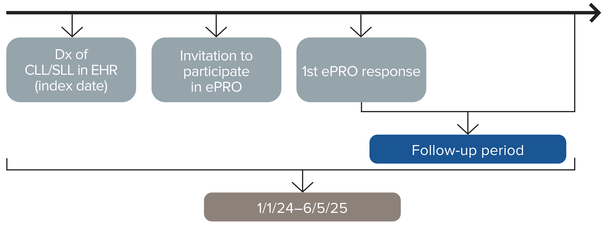
INTRODUCTION

- Bruton tyrosine kinase inhibitors (BTKis) are well-established therapies for chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL)[1]
- There is little data comparing real-world patient experience between different BTKis within the class
- Using electronic patient-reported outcomes (ePROs) provides an opportunity to gain insights into the patient experience from the patient perspective and can inform clinical decision-making and management
- The Canopy Care remote therapeutic monitoring (Canopy RTM) platform is an electronic medical record-integrated, cloud-based symptoms questionnaire delivered to patients via smartphone apps, web app, or interactive voice response[2]
- This study reports on data using Canopy's ePRO-based RTM system to examine and characterize symptoms reported by patients diagnosed with CLL/SLL and treated with a second-generation BTKi
- Of interest was the rate of common symptom reporting by BTKi and time on treatment

METHODS

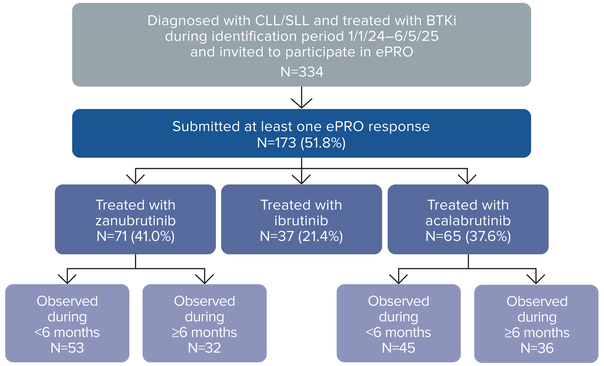
- This was a retrospective, observational study of adult patients diagnosed with CLL/SLL who were being treated in a community-based oncology treatment setting
- Patients were identified from electronic health record (EHR) data
- Eligible patients were BTKi-treatment-naïve and undergoing treatment with a BTKi between January 1, 2024 and June 5, 2025
- Once identified, eligible patients were invited to participate in the Canopy RTM program
- The index date was the date of initiation of BTKi treatment
- Patients were included in the analysis if they submitted at least one symptom report
- ePRO participants were stratified into cohorts based on BTKi treatment (zanubrutinib or acalabrutinib) (**Figure 1**)
- Participants were also stratified by time on treatment (<6 months and ≥6 months), and based on the treatment duration, could be included in both intervals if data was collected in both time periods (**Figure 2**)
- The 5 most frequently reported symptoms were examined by BTKi cohort and time on treatment
- Other clinically relevant symptoms were examined and characterized

Figure 1. Study Design



Abbreviations: CLL/SLL, chronic lymphocytic leukemia/small lymphocytic lymphoma; Dx, diagnosis; EHR, electronic health record; ePRO, electronic patient-reported outcome.

Figure 2. Patient Identification and Stratification[a]



[a] The time on treatment cohorts were not mutually exclusive. Depending on time on treatment, patients can appear in more than one condition.

Abbreviations: BTKi, Bruton tyrosine kinase inhibitor; CLL/SLL, chronic lymphocytic leukemia/small lymphocytic lymphoma; ePRO, electronic patient-reported outcome.

RESULTS

Demographics

- A total of 173 patients diagnosed with CLL/SLL who were BTKi treatment-naïve and treated with a BTKi during the identification period were invited to participate in the ePRO program and submitted at least one ePRO report
- Median age was 72.2 years on the index date and 64.7% were male
- A total of 71 (41.0%) participants were treated with zanubrutinib and 65 (37.6%) with acalabrutinib
- Time from CLL/SLL diagnosis to BTKi treatment averaged 19 months for the zanubrutinib cohort and 17 months for the acalabrutinib cohort
- No differences were found for age (P=0.7) or sex (P=0.2) between the zanubrutinib and acalabrutinib cohorts
- Among patients treated with zanubrutinib or acalabrutinib, 72% and 72%, respectively, had no evidence of any previous anticancer drug exposure (**Table 1**)

Table 1. Patient Demographic Data

Characteristic	Overall (N=173)	Treated with Zanubrutinib (N=71)	Treated with Acalabrutinib (N=65)
Age (Md)	71	72	73
Male (%)	65%	56%	71%
Female (%)	35%	44%	29%
White (%)	76%	76%	74%
Black (%)	9%	9%	9%
Hispanic (%)	4%	3%	5%
Other/Missing (%)	12%	13%	12%
Time from CLL/SLL Diagnosis, Months (Mean)	19	19	17
BTKi as 1st LOT (%)	72%	72%	72%

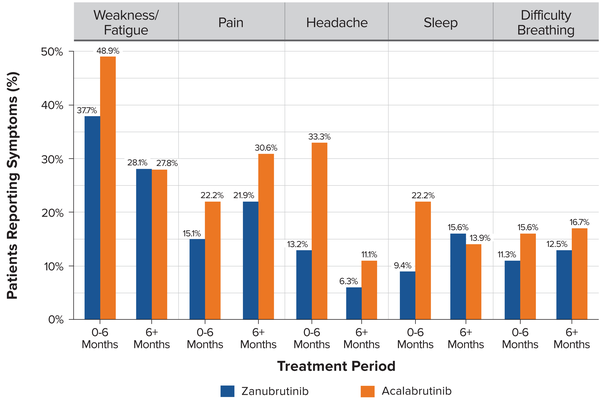
Abbreviations: BTKi, Bruton tyrosine kinase inhibitor; CLL/SLL, chronic lymphocytic leukemia/small lymphocytic lymphoma; LOT, line of therapy; Md, median.

Symptoms

Most Frequently Reported Symptoms

- The five most frequently reported symptoms using the ePRO platform were weakness/fatigue (39.7%), pain (22.1%), headache (18.4%), sleep issues (16.2%), and difficulty breathing (14.7%)
- During the first <6 months of treatment, patients treated with zanubrutinib vs acalabrutinib reported fatigue/weakness (37.7% vs 48.9%, respectively), pain (15.1% vs 22.2%), headache (13.2% vs 33.3%), sleep disturbances (9.4% vs 22.2%), and difficulty breathing (11.3% vs 15.6%)
- During ≥6 months of treatment, patients treated with zanubrutinib vs acalabrutinib reported weakness/fatigue (28.1% vs 27.8%, respectively), pain (21.9% vs 30.6%), headache (6.3% vs 11.1%), sleep issues (15.6% vs 13.9%), and difficulty breathing (12.5% vs 16.7%) (**Figure 3**)

Figure 3. Symptoms by Cohort and Time on Treatment



Cardiac Symptoms

- The proportion of patients reporting heart palpitation and chest pain was also examined
- During the first <6 months of treatment, patients treated with zanubrutinib vs acalabrutinib reported heart palpitations (1.9% vs 6.7%, respectively) and chest pain (1.9% vs 6.7%)
- During ≥6 months of treatment, patients treated with zanubrutinib vs acalabrutinib reported heart palpitations (0.0% vs 5.6%, respectively) and chest pain (0.0% vs 5.6%)

LIMITATIONS

- The data reported were only for patients who submitted at least one ePRO response, and may not generalize to patients who did not participate
- This was intended to be a descriptive study and statistical comparisons were not undertaken
- Additional research is needed to gain further insight into the impact of these symptoms on real-world BTKi treatment duration and utilization patterns

REFERENCES

1. Tam C, et al. *Blood Adv*. 2024;8(9):2300-9.
2. Cherny NI, et al. *JCO Oncol Pract*. 2022;18(12):e1917-26.

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