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Longitudinal Adherence Patterns of Asciminib versus Other Tyrosine Kinase Inhibitors in Chronic Myeloid Leukemia: A Group-Based Trajectory Analysis

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KEY FINDINGS & CONCLUSIONS

- GBTM provides a clinically meaningful, data-driven framework to capture longitudinal TKI treatment adherence dynamics among patients with CML and represents a novel application of this methodology in oncology
- Patients receiving asciminib were more likely to be classified as highly adherent and less likely to be classified as rapid decliners
- The rapid-decline group suggests non-optimal treatment, highlighting persistent unmet needs in CML, particularly with TKIs other than asciminib[11]
- Long-term adherence to asciminib in US clinical practice is consistent with the favorable tolerability profile reported in trials,[6,7] potentially contributing to improved long-term clinical outcomes and quality of life in this population

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BACKGROUND

- Group-based trajectory modeling (GBTM), which captures dynamic and non-linear medication adherence patterns over time, represents a novel application in oncology for real-world studies using administrative claims data[1,2]
- This approach is particularly relevant in chronic myeloid leukemia (CML), where tyrosine kinase inhibitors (TKIs) are the mainstay of treatment and adherence is associated with treatment tolerability and long-term efficacy[3]
- In CML, clinical decision-making regarding TKI treatment continuation or modification are mainly informed by guideline-recommended response milestones during the first year of therapy (e.g., at 3-, 6-, and 12-months), as well as treatment tolerability and adverse events[4,5]
- Asciminib, the first TKI specifically targeting the ABL myristoyl pocket (STAMP), has been approved for newly diagnosed or previously treated CML, demonstrating efficacy and tolerability in phase III ASC4FIRST and ASCEMBL trials[6,7]
- Other TKIs approved for CML are ATP-competitive inhibitors, including first- (i.e., imatinib) and second-generation (i.e., dasatinib, nilotinib, bosutinib) TKIs, as well as ponatinib[5]

Objective

- To assess the clinical relevance of GBTM in CML and compare longitudinal adherence trajectories between asciminib and other TKIs among patients with CML in second-line (2L)

METHODS

- A retrospective, longitudinal cohort study of adult patients with Ph+ CML-CP was used
- De-identified data were obtained from HealthVerity, a large US nationwide health insurance claims database (1 January 2016 to 21 May 2025)
- Patients were included if they were ≥18 years old, had ≥2 diagnosis codes for CML (ICD-10-CM: C92.1), initiated 2L treatment after 29 October 2021 with asciminib or another TKI (index date), and had ≥12 months of follow-up post-index
- Entropy balancing was used to balance 12-month baseline characteristics between the 2L asciminib and the 2L other TKI cohorts[8]
- Balance of baseline characteristics was assessed using standardized differences, with <0.10 considered well-balanced[9]
- Treatment adherence for each TKI was assessed at monthly intervals up to 12-months post-index using the proportion of days covered (PDC)
- Adherence trajectories during the 12-month post-index period were modeled using GBTM with a cubic polynomial functional form and a 3-group solution jointly selected based on:
  - **Model fit:** a lower (preferred) Bayesian Information Criterion (BIC) was obtained with 3 adherence trajectory groups compared with solutions of ≥4 groups[1,2]
  - **Clinical relevance:** consistent with an expected highly adherent group and a group showing potentially non-monotonic adherence drops at key treatment milestones (3-, 6-, and 12-months)[4,5]
  - **Patient distribution:** minimum group size threshold applied, avoiding categories <10% of the population to preserve interpretability and limit overfitting[1,2]
- The average posterior probability of assignment (APPA; >0.7 considered acceptable) and the odds of correct classification (OCC; >5 considered acceptable) were also assessed to confirm model fit[10]
- Weighted risk ratios (RRs) were used to compare the proportion of patients between the 2L asciminib and 2L other TKI cohorts in each adherence trajectory group

RESULTS

Patient characteristics

- Overall, 90 patients in the 2L asciminib cohort and 1,612 patients in the 2L other TKI cohort (dasatinib: 37%, bosutinib: 23%, nilotinib: 18%, imatinib: 18%, or ponatinib: 4%) were included (**Table 1**)

Table 1. Weighted patient characteristics

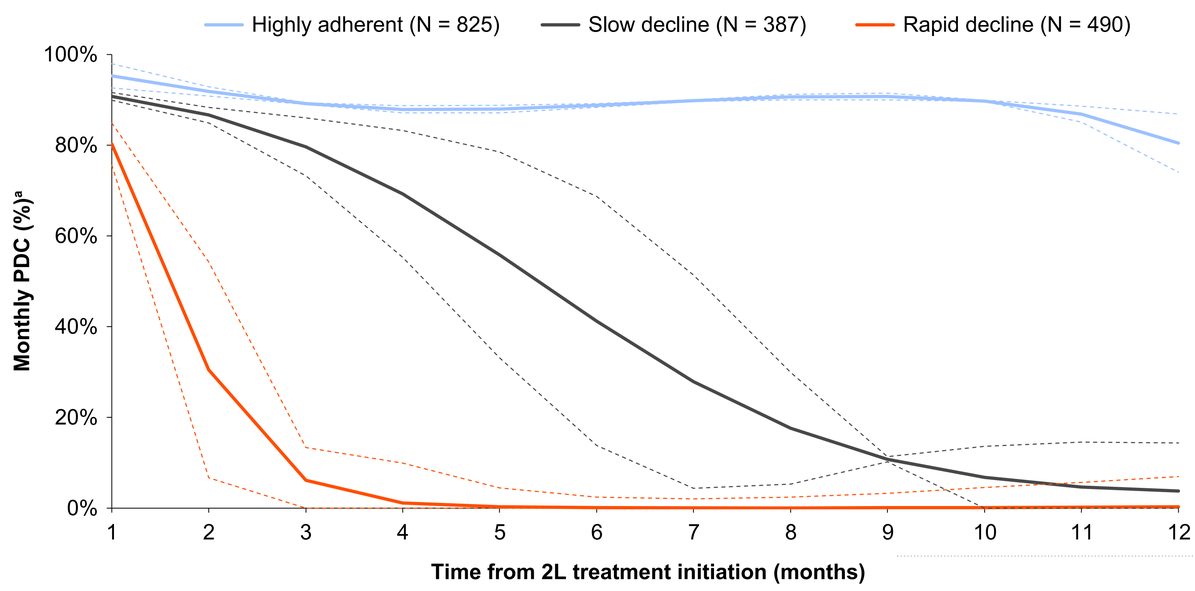
	2L asciminib cohort N = 90	2L other TKI cohort N = 1,612	Std. Diff.[c]
Age, mean ± SD [median]	54.7 ± 14.7 [57.5]	54.7 ± 14.6 [56.0]	0.00
Male, n (%)[a]	50 (55.6)	896 (55.6)	0.00
Insurance plan type, n (%)[b]			
Commercial	42 (46.7)	752 (46.7)	0.00
Medicaid	26 (28.9)	528 (32.8)	0.08
Medicare Advantage	16 (17.8)	290 (18.0)	0.06
Unknown	10 (11.1)	123 (7.6)	0.12
Index year, n (%)			
2021-2022	31 (34.4)	555 (34.4)	0.00
2023-2025	59 (65.6)	1,057 (65.6)	0.00
NCI comorbidity index score, mean ± SD [median]	0.5 ± 0.7 [0.3]	0.6 ± 0.7 [0.3]	0.02
Adherence-related comorbidities, n (%)[c]	50 (55.6)	896 (55.6)	0.00
Anxiety	39 (43.3)	673 (41.7)	0.03
Depression	28 (31.1)	562 (34.8)	0.08
Substance-related and addictive disorders	24 (26.7)	431 (26.7)	0.01
TKI initiated in 1L, n (%)			
First-generation TKI	18 (20.0)	322 (20.0)	0.00
Second-generation TKI	72 (80.0)	1,290 (80.0)	0.00

Abbreviations: 1L: first-line; 2L: second-line; NCI: National Cancer Institute; SD: standard deviation; Std. Diff.: standardized difference; TKI: tyrosine kinase inhibitor.
Notes:
[a.] Gender was unknown for 1 patient per cohort.
[b.] Categories were not mutually exclusive.
[c.] Standardized differences <0.10 were considered well-balanced.

TKI adherence trajectories

- Overall (N = 1,702), the GBTM identified three distinct 2L TKI adherence trajectory groups (**Figure 1**):
  - **Highly adherent** (N = 825; median monthly PDC: 95%): patients demonstrating consistently high adherence over time, with a mean monthly PDC >90%
  - **Slow decline** (N = 387; median monthly PDC: 42%): TKI discontinuation between months 3 and 12 post-index, corresponding to missed treatment milestones for lack of efficacy
  - **Rapid decline** (N = 490; median monthly PDC: 8%): poor adherence and discontinuation within the first 3 months post-index after the treatment initiation and suggesting early tolerability issues
- For each trajectory group, APPA >0.7 and OCC >5, indicating adequate model fit

Figure 1. 2L TKI adherence trajectories from GBTM

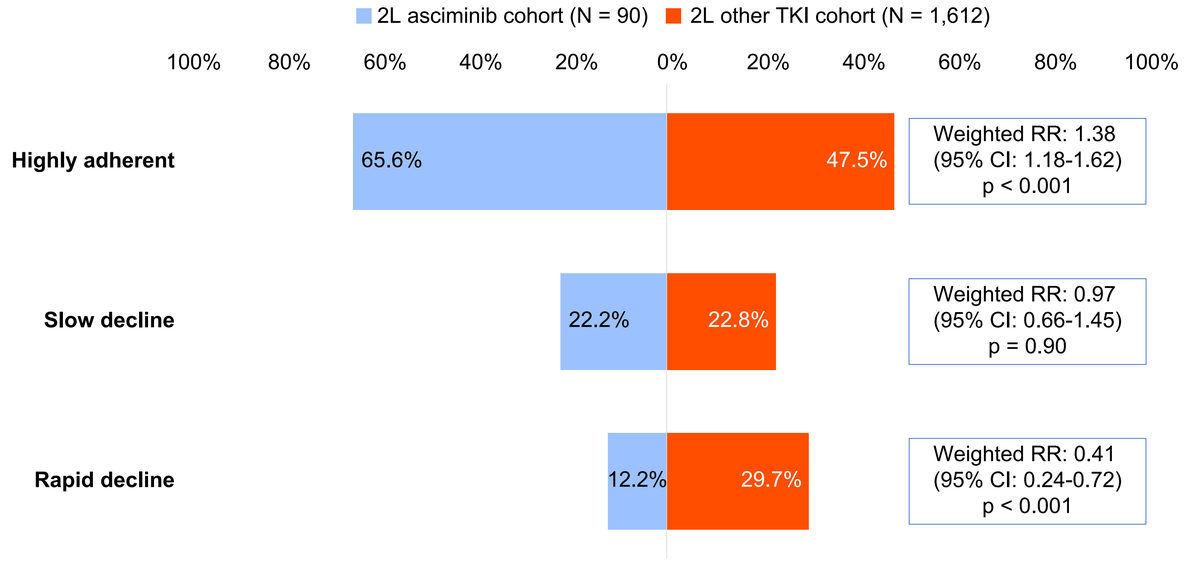


Model fit	APPA[b]	OCC[c]
Highly adherent	0.99	119.96
Slow decline	0.96	91.53
Rapid decline	0.98	106.04

Abbreviations: 2L: second-line; APPA: average posterior probability of assignment; GBTM: group-based trajectory modeling; OCC: odds of correct classification; PDC: proportion of days covered; TKI: tyrosine kinase inhibitor.
Notes:
[a.] Dashed lines represent 95% confidence intervals.
[b.] APPA >0.7 considered acceptable.
[c.] OCC >5 considered acceptable.

- Asciminib-treated patients were significantly more likely to be classified as highly adherent compared with those receiving other TKIs in 2L (65.6% vs. 47.5%; weighted RR: 1.38; p < 0.001) (**Figure 2**)
- Asciminib-treated patients were significantly less likely to be classified as rapid decliners compared with those receiving other TKIs in 2L (12.2% vs. 29.7%; weighted RR: 0.41; p < 0.001)

Figure 2. Distribution of 2L asciminib and 2L other TKI cohorts by adherence trajectory group



Abbreviations: 2L: second-line; CI: confidence interval; RR: risk ratio; TKI: tyrosine kinase inhibitor.

Limitations

- Information on disease severity and phase, laboratory results, and reasons for treatment modifications was limited in claims data
- TKI use was inferred from pharmacy claims and not actual patient ingestion
- Coding errors, missing data, and residual confounding may affect the results

References

1. Clark SE, et al. *J Oncol Pharm Pract.* 2021;27(8):1842-1852. **2.** Alhazami M, et al. *J Manag Care Spec Pharm.* 2020;26(9):1138-1152. **3.** Marin D, et al. *J Clin Oncol.* 2010;28(14):2381-2388. **4.** Hochhaus A, et al. *Leukemia.* 2020;34(4):966-984. **5.** Jabbour E, et al. *Am J Hematol.* 2024;99(11):2191-2212. **6.** Hochhaus A, et al. *Leukemia.* 2023;37(3):617-626. **7.** Hochhaus A, et al. *N Engl J Med.* 2024;391(10): 885-898. **8.** Hainmueller *J. Political Analysis.* 2012;20(1):25-46. **9.** Austin P. *Commun Stat Simul Comput.* 2009;38(6):1228-1234. **10.** Diop A, et al. *Pharm Stat.* 2024;23(4): 511-529. **11.** Kota V, et al. *J Med Econ.* 2025;28(1):743-752.

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