David Wei | david-1.wei@novartis.com

Poster CML-969

Impact of Adverse Events on Health-Related Quality of Life in Chronic Myeloid Leukemia: Results From the Patient Survey on Humanistic Burden of Intolerance to First or Second Tyrosine Kinase Inhibitors (SHIFT) Study in the United States

Kelly Schoenbeck,[1] Joan Clements,[2] Karen DeMairo,[3] Jennifer Hiller,[4] David Wei,[5] Nisha C. Hazra,[6] Cristina Constantinescu,[7] Yan Meng,[6] Dominick Latremouille-Viau,[8] Gabriel Marquez,[9] Daisy Yang,[5] Andrea Damon,[5] Islam Sadek,[5] Annie Guérin,[8] Kathryn E. Flynn[10]

[1]University of California, San Francisco, San Francisco, CA, USA; [2]CML Buster Foundation, Costa Mesa, CA, USA; [3]The Leukemia & Lymphoma Society, Washington D.C., MD, USA; [4]Manton, CA, USA; [5]Novartis Pharmaceuticals Corporation, East Hanover, NJ, USA; [6]Analysis Group, Ltd., London, UK; [7]Ipsos, Geneva, Switzerland; [8]Analysis Group, Inc., Montreal, Canada; [9]Novartis Pharmaceuticals Corporation, Dublin, Ireland; [10]Medical College of Wisconsin, Madison, WI, USA

KEY FINDINGS & CONCLUSIONS

- Findings from the SHIFT study demonstrate the substantial humanistic burden of TKI-related AEs in patients with CML in the United States
- Most patients had multiple persistent AEs, regardless of whether they were receiving a first or second TKI, negatively impacting physical and mental health and contributing to worse QOL
- The extent of work productivity impairment is reflected in the high proportion modifying employment due to CML and, in those employed, experiencing some work productivity loss
- QOL and work productivity were even poorer in patients experiencing a "low point", or feeling the worst in terms of their QOL, suggesting that our estimate of the humanistic burden in CML is conservative
- Treatment options with better tolerability profiles are needed to reduce AEs and help patients with CML preserve QOL

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INTRODUCTION

- Despite extending life expectancy in patients with CML, TKIs can cause AEs[1]
- Frequent AEs and intolerance to TKIs often result in reduced treatment adherence and medication modifications, including discontinuation and reduced QOL[2]
- The SHIFT study aimed to evaluate the impact of TKI-related AEs on health-related QOL in CML using PROs in US clinical practice settings

METHODS

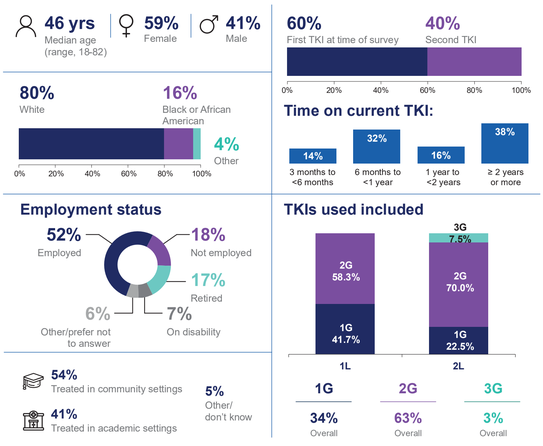
- The SHIFT study is a cross-sectional online survey conducted in patients with CML in the United States from June to December 2024
- During this period, several 1G (imatinib) and 2G (dasatinib, nilotinib, and bosutinib) ATP-competitive TKIs were indicated for newly diagnosed patients with CML; additionally, ponatinib (3G) was considered for second treatment for CML
- Asciminib, a selective allosteric inhibitor binding the myristoyl pocket of ABL1, was not indicated in this setting
- Eligible participants included adults (≥ 18 years old) receiving an ATP-competitive TKI for ≥3 months as first or second treatment for CML
- Data was collected on 18 AEs using the PRO-CTCAE[3]
- Health-related QOL was evaluated using the Patient-Reported Outcomes Measurement Information System - Global Health questionnaire (PROMIS-GH-10 v1.2; T-scores, lower score indicates worse health)[4] and the Work Productivity and Activity Impairment Questionnaire: Specific Health Problem (WPAI:SHP; impairment percentages, higher percentages are worse)[5]
- Patient-reported "low point(s)", defined as the time(s) since current TKI start when AEs had the most unpleasant/negative impact on QOL from the patient's perspective, was also collected
- This study was exempt by the Pearl Institutional Review Board under 45 CFR 46.104(d)(2)

RESULTS

Patient characteristics

- A total of 271 patients participated in the study (**Figure 1**)

Figure 1. Patient Characteristics



High number of persistent AEs experienced by patients with CML

- In the 7 days prior to the survey, patients reported a median of 3 AEs (range, 0-14; 41% experiencing ≥4). Most patients (80%) experienced chronic (long-lasting) AEs
- Most common AEs included fatigue (54%), joint pain (34%), muscle pain (30%), problems with memory (22%), and anxiety (21%) (**Figure 2**)
- The majority of patients (77%) experienced ≥1 low point since starting their TKI (23% in the last 7 days; 55% outside the last 7 days); low point(s) were most common in the first 3 months of treatment (55%)

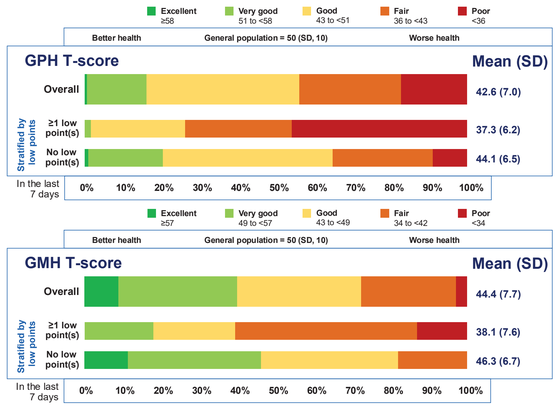
Figure 2. Distribution of PRO-CTCAE Scores by AE



Poorer health-related QOL of patients with CML than general population

- Mean (SD) PROMIS Global Physical Health (GPH) and Global Mental Health (GMH) T-scores in the last 7 days were 42.6 (7.0) and 44.4 (7.7), respectively, reflecting poorer global health than the general population (mean poorer global health than in the general population (mean, 50 [10]) (**Figure 3**)
  - Almost half (44%) and one-third (28%) of patients reported a "fair or poor" rating for GPH and GMH, respectively
- In patients who reported ≥1 low point in the 7 days prior to being surveyed, mean (SD) GPH and GMH T-scores were worse than in those who did not experience low points, at 37.3 (6.2) and 38.1 (7.6), respectively (**Figure 3**)

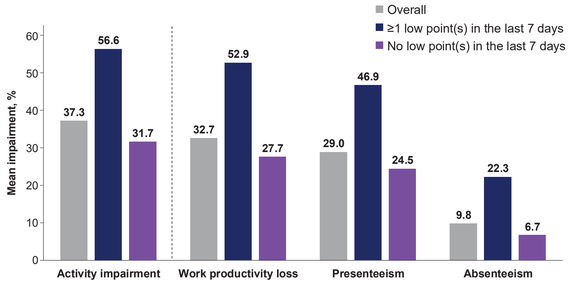
Figure 3. Distribution of PROMIS Global Physical Health and Global Mental Health T-scores



Extent of work productivity and activity impairment in patients with CML

- Mean percent activity impairment due to CML was 37.3% (**Figure 4**)
- More half of patients (53.5%) had a change in employment status due to CML: 14% from full-time to part-time, 13% from full-time to unemployed, 10% took early retirement, and 7% stopped working temporarily/reduced workload
- Of those employed:
  - 80% reported some productivity loss (overall work impairment) due to CML, with a mean percent work productivity loss of 32.7%
  - Presenteeism (impairment while working) and absenteeism (work time missed) had a mean percent of 29.0% and 9.8%, respectively
- All productivity impairment percentages were worse in patients with ≥1 low point in the 7 days prior to being surveyed

Figure 4. Work Productivity and Activity Impairment Specific Health Problem—Impairment Percentages



LIMITATIONS

- Patients with more severe disease, male patients, and older patients may be underrepresented; therefore, the impact of AEs/intolerance on the overall humanistic burden may be underestimated
- Evaluation of humanistic burden is limited to the time of survey completion, and findings may not be generalizable to the overall population of patients with CML in the United States
- Confirmation of diagnosis by a medical professional or through medical charts was not required for patient eligibility

References

1. Bixby D, Talpaz M. *Hematology Am Soc Hematol Educ Program*. 2009;461-476.
2. Jadhav K, et al. *Value in Health*. 2023;26(6), S400.
3. Basch E, et al. *J Natl Cancer Cent*. 2014;106(9):dju244.
4. Hays RD, et al. *Qual Life Res*. 2009;18:873-80.
5. Reilly MC, et al. *Pharmacoeconomics*. 1993;4:353-365.

Abbreviations

1G, first generation; 2G, second generation; 3G, third generation; ABL1, ABL proto-oncogene 1, non-receptor tyrosine kinase; AE, adverse event; ATP, adenosine triphosphate; CML, chronic myeloid leukemia; GMH, Global Mental Health; GPH, Global Physical Health; PRO, patient-reported outcome; PRO-CTCAE, Patient-Reported Outcomes version of the Common Terminology Criteria for Adverse Events; PROMIS-GH-10, Patient-Reported Outcomes Measurement Information System - Global Health; QOL, quality of life; TKI, tyrosine kinase inhibitor; WPAI:SHP, Work Productivity and Activity Impairment Questionnaire Specific Health Problem.

Previous Presentation

Schoenbeck K, et al. Presented the EHA2025 Congress; June 12-15, 2025; Milan, Italy. Poster PS1595. Reprinted with permission from the author.

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