Adherence, Persistence, and Molecular response patterns in patients with CML treated with Tyrosine Kinase Inhibitors in an Integrated Health System Specialty Pharmacy

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Background

- Tyrosine Kinase inhibitors (TKIs) have changed the landscape of chronic myelogenous leukemia (CML) treatment where patients can have a life expectancy approaching the general population.
- However, patients must be adherent to therapy to maximize the benefits of TKIs. Adherence can be challenging due to adverse effects and toxicities.
- Studies have reported a suboptimal molecular response below a threshold PDC (persistence) of 0.80 and MPR (adherence) of 0.85.
- Specialty pharmacies play a crucial role in patient adherence to TKI therapy.
- Outpatient Pharmacy Services is an integrated health system specialty pharmacy (HSSP) within the Yale New Haven Health (YNHH) system. In May 2023, YNHH HSSP migrated to a new comprehensive disease specific patient management platform.
- Patients with CML were enrolled in the CML disease program with specific tasks and disease management support tools.

Objective

To evaluate the adherence, persistence, and molecular response patterns among patients with CML on TKIs.

Methods

Retrospective chart review of completed tasks between May 1, 2023, to April 30, 2024.

For patients on TKIs (imatinib, dasatinib, bosutinib, nilotinib, and asciminib) as primary or subsequent treatment enrolled within the CML program.

Patients on TKI therapy for at least one year were included.

1. The primary outcome included evaluating MPR and PDC of TKIs for patients filling with OPS.

2. Molecular response patterns (*BCR-ABL* transcript levels) were evaluated for secondary outcomes.

Demographic data, presence of mutations, and prescribing patterns of TKIs were also evaluated.

Results

167 patient charts were retrieved. 164 were reviewed, 3 deceased patients excluded.

Figure 1 (b): Patient demographics (sex at birth)

Female: 42.7%

Male: 57.3%

Figure 1 (a): Patient demographics (age)

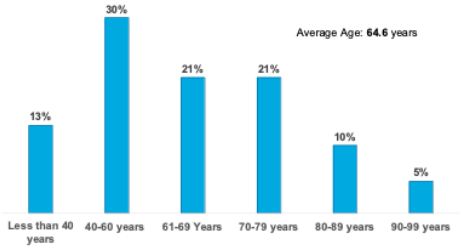


Figure 2: Average MPR and PDC

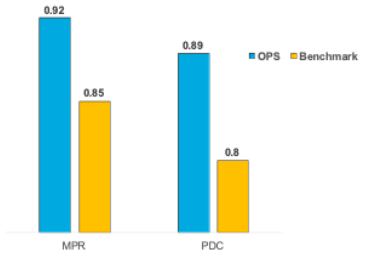


Figure 3: Patients achieving MMR and CMR (%)

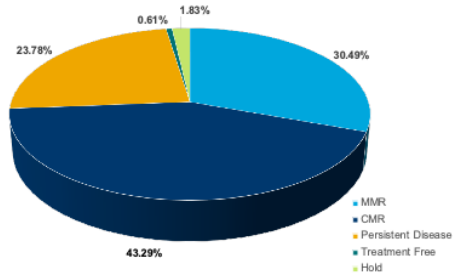


Figure 4: Patients (%) achieving molecular response based on TKI prescribing

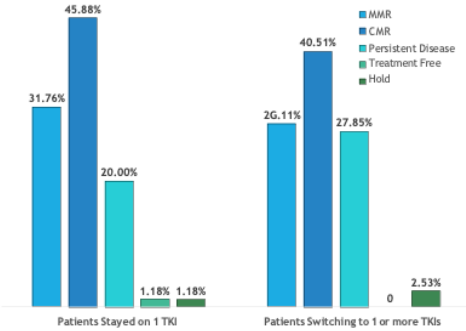
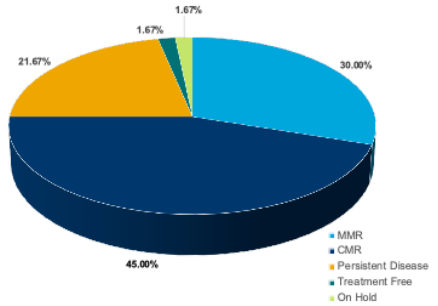


Figure 5: Molecular response patterns of patients on Imatinib, no therapy switch



Discussion

- OPS exceeded the benchmark values for MPR and PDC obtained from the literature[1,2] due to close monitoring of patients by specialty clinical pharmacists at the HSSP.
- A total of 73.78% of CML patients treated with TKIs had achieved at least MMR compared to the 60% benchmark reported in the literature [3].
- Specialty clinical pharmacists assess patients for adverse events and missed doses 5-days post medication initiation.
- Patients are also followed up every 6 months or sooner for reassessments.
- The common mutations observed were T315I (4), F359I (1), CALR, ASLX1 (1), and E255V (1).
- The new patient management platform enabled closer tracking of disease specific tasks and patient outreach.

*MMR- Major Molecular Response defined as *BCR-ABL* levels ≤0.1%
**CMR- Complete Molecular Response defined as no detectable *BCR-ABL* levels

Limitations

- This is a retrospective review of patients on TKI therapy for a minimum of one year, the total time on TKI therapy was not evaluated.
- The most recent lab on the patient's chart was used for molecular response.
- The review did not include pharmacists' specific interventions and their effects on adherence and molecular response patterns.

Conclusion

Specialty clinical pharmacist interventions result in improved adherence and outcomes for patients with CML.

Acknowledgments

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