EFFICACY AND SAFETY OF ASCIMINIB IN ADVANCED CHRONIC PHASE-CHRONIC MYELOID LEUKEMIA: A SINGLE-ARM META-ANALYSIS

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Introduction

Tyrosine kinase inhibitors (TKIs) have significantly improved outcomes in chronic myeloid leukemia (CML), yet a substantial proportion of patients eventually develop resistance or intolerance, particularly after multiple drug therapies. For these heavily pretreated individuals, treatment options remain limited and clinical responses tend to diminish with each subsequent TKI. Asciminib (ASC), a novel drug targeting the ABL myristoyl pocket (STAMP), has emerged as a promising alternative with a unique mechanism and favorable safety profile. However, the data available is sparse.

Aim

This meta-analysis aims to pool the current evidence on the efficacy and safety of ASC in patients with CML after failure of ≥2 TKIs, addressing a critical gap in therapeutic decision-making for this high-risk population.

Methods

We conducted a systematic search of PubMed, Embase, and Cochrane databases to identify studies, evaluating efficacy of ASC in advanced chronic phase-CML (CP-CML) patients.

Primary outcomes: proportion of patients achieving **major molecular response (MMR)** defined as BCR::ABL1S <0.1%, pre and post treatment.

Secondary outcomes: Rates of **treatment failure** and **grade ≥3 adverse effects**.

Pooled estimates with 95% confidence intervals (CIs) were calculated using R version 4.5.0 with a random-effects model for all outcomes.

Results

- A total of 3 studies consisting of 148 patients were included in this study.
- The pooled risk difference for **MMR** was **0.17 [95% CI: 0.03–0.31](p = 0.036)**, showing significant improvement following ASC-treatment.
- The pooled **treatment failure rate** was **13.68% [95% CI: 5.29–31.05](p=0.015).**
- Incidence of **grade 3 or more adverse effects** was **9.81% [95% CI: 1.69–40.78](p=0.097)**.

Figure 1: Major Molecular Response

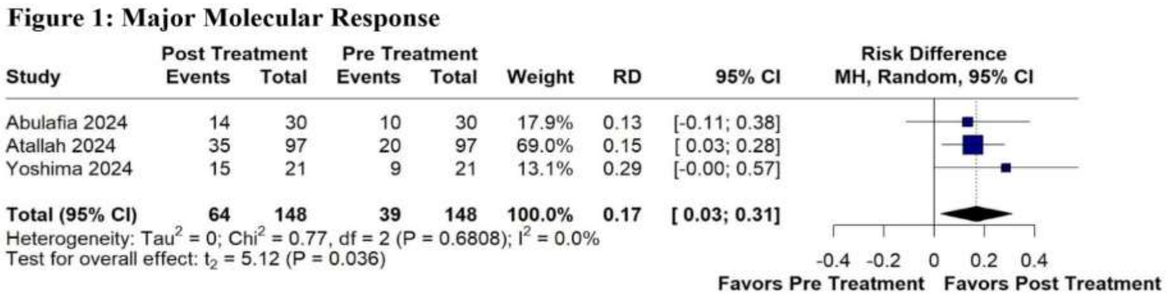


Figure 2: .Treatment failure rate

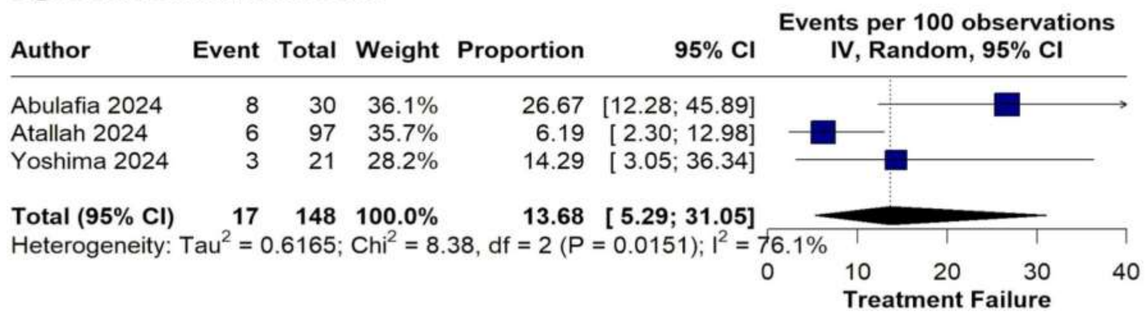
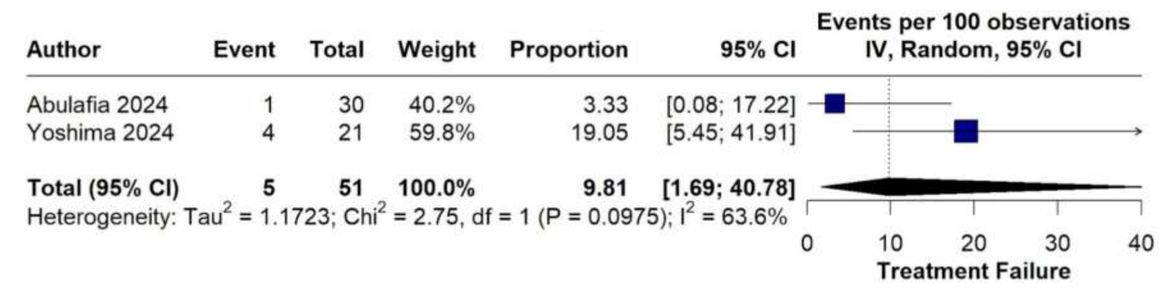


Figure 3: Incidence of grade ≥3 adverse effects



Conclusion

ASC showed substantial improvement in MMR in CP-CMR patients with modest safety events and failure rates. These findings reinforce its potential as a reliable therapeutic option, especially for patients with prior treatment resistance. Further large-scale studies are warranted to validate long-term efficacy and guide precision based treatment.

References

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