TREATMENT INTENSITY DOES NOT IMPROVE SURVIVAL IN TP53-MUTATED ACUTE MYELOID LEUKEMIA: REAL-WORLD OUTCOMES FROM A RACIALLY DIVERSE ACADEMIC CENTER

E. CAI [1], H. TURNER [1], J. HARO-SALERIO [2], J. FRAEBEL [2], N. BALESTRA [1], B. MILLER [1], T. NGUYEN [1], A. LI [1], L. NASR [1], C. WEST [1], J. LU [2], and T. ABUASAB [2]

1. Department of Medicine, Baylor College of Medicine, Houston, TX, USA
2. Section of Hematology & Oncology, Baylor College of Medicine, Houston, TX, USA

Baylor College of Medicine

INTRODUCTION

TP53-mutated acute myeloid leukemia (AML) is an adverse risk AML that is highly chemo-resistant with median overall survival (OS) of 5-6 months regardless of treatment approach. Whether intensive therapy (IC) confers benefit over low-intensity therapy (LIC) remains debated. Most published cohorts derive from predominantly White populations. Outcomes in racially diverse cohorts remain limited.

AIM

Our aim is to compare OS, PFS, and complete remission with or without incomplete hematologic recovery (CR/CRi) between IC and LIC in newly diagnosed TP53-mutated AML at a diverse academic medical center.

METHOD

We performed a **retrospective single-center analysis** from March 2017 – July 2025 at Baylor St. Luke's Medical Center. Patients diagnosed with TP53 mutated AML by next-generation sequencing (NGS) were stratified by frontline intensity: 7+3 based therapy (IC) versus hypomethylating agent with or without venetoclax (LIC). Patients who received no therapy were excluded. Baseline characteristics were compared then survival outcomes were analyzed using Kaplan-Meier and log-rank tests.

CONCLUSIONS

In this racially diverse cohort, IC did not appear to confer any statistically significant benefit in OS, PFS, or CR/CRi compared to LIC treatment in patients with newly diagnosed TP53-mutated AML. LIC achieved comparable outcomes despite worse baseline health status. LIC may be a reasonable frontline approach in this molecular subgroup. Findings also reaffirm the chemo-refractory biology of TP53-mutated AML and highlight the need for novel therapeutic approaches.

REFERENCES

Shah MV, Arber DA, Hiwase DK. TP53-mutated myeloid neoplasms: 2024 update on diagnosis, risk-stratification, and management. Am J Hematol. 2025;100:88-115.

Kim K, Maiti A, Loghavi S, Pourebrahim R, Kadia TM, Rausch CR, et al. Outcomes of TP53-mutant acute myeloid leukemia with decitabine and venetoclax. Cancer. 2021;127(20):3772-81.

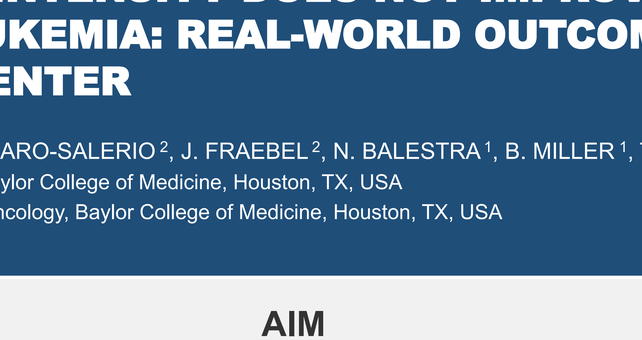
Shahzad M, Amin MK, Daver NG, Shah MV, Hiwase D, Arber DA, et al. What have we learned about TP53-mutated acute myeloid leukemia? Blood Cancer J. 2024;14(1):202.

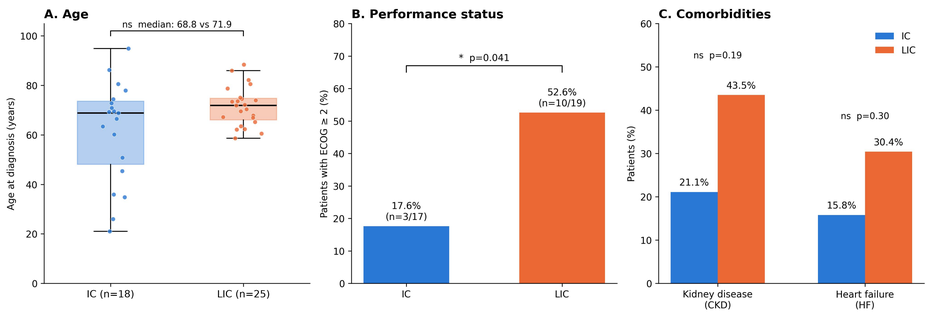
RESULTS

Figure 1: Characteristics of TP53-mutated AML patients receiving IC vs. LIC treatment.

Right: TP53-mutated AML patient population by race. Non-White groups are representing about 50% of the patient cohort.

Below: Baseline age, performance status, and comorbidities of TP53-mutated AML patients receiving IC vs. LIC treatment. Patients receiving LIC therapy had significantly worse performance status, defined by a Eastern Cooperative Oncology Group Performance Status (ECOG) greater than 2. This patient population also tended to be older with more comorbidities, though median age and percentage of patients with kidney disease and heart failure was not statistically significant.





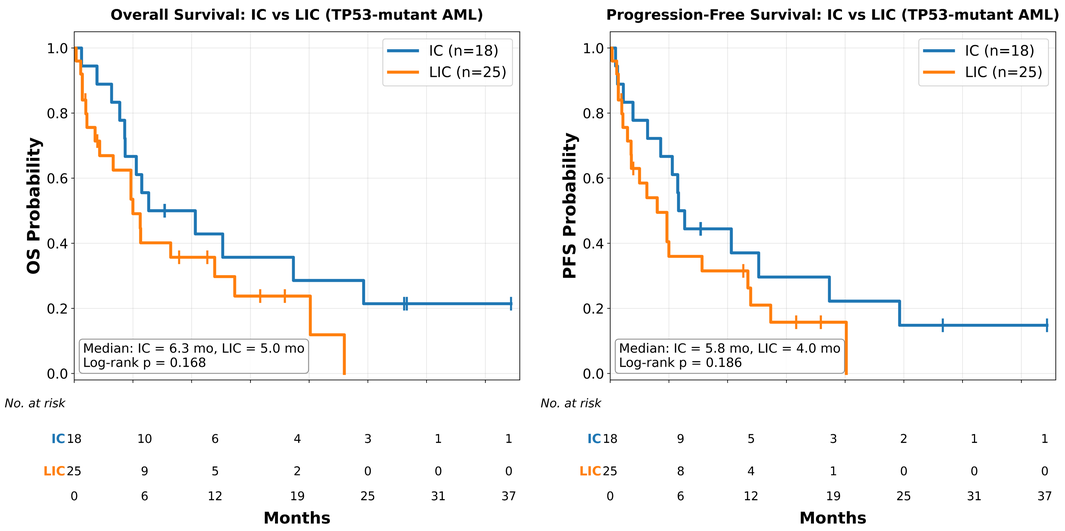


Figure 2: OS and PFS probability are comparable between TP53-mutated AML patients receiving IC vs. LIC therapy. OS is defined as time from treatment initiation to death. Patients alive at the last follow-up are censored. PFS is defined as time from treatment initiation to disease progression or death. Tick marks indicate censored observations. Median OS and PFS between patients receiving IC versus LIC therapy were not statistically significant.

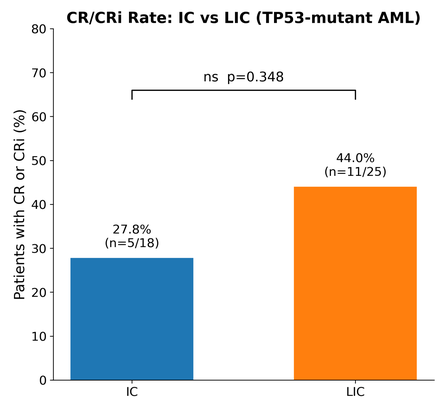


Figure 3: CR/CRi rates between TP53-mutated AML patients receiving IC vs. LIC therapy is comparable. Complete remission with or without hematologic recovery was assessed at bone marrow evaluations. Comparison shows no significant difference in complete remission rates between the two treatment groups.