Personalized Therapy and Real-World Outcomes in Adult Acute Myeloid Leukemia: Lessons From a Nationwide Prospective Cohort in Turkey

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Introduction

Acute myeloid leukemia (AML) is a biologically and clinically heterogeneous malignancy, primarily affecting older adults.

Despite therapeutic advances, real-world outcomes remain suboptimal, especially in elderly and high-risk patients.

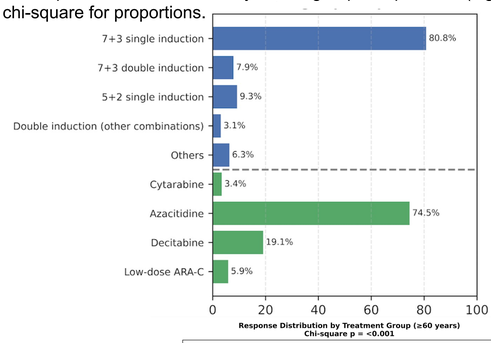
Nationwide registry data can guide personalized treatment strategies.

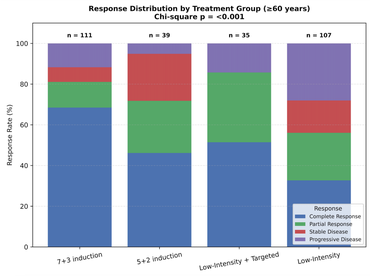
Objectives

To evaluate baseline characteristics, treatment patterns, and 1-year real-world outcomes in adult AML patients across Turkey, focusing on the prognostic impact of ELN risk classification, performance status, and treatment intensity.

Methods

Design: Interim analysis of the Turkish AML Registry Project (NCT05979675)
Population: 891 adults with newly diagnosed AML (June 2022 – July 2023) from 23 tertiary centers.
Variables: Treatment intensity (high vs low), targeted therapy use, ECOG performance status, ELN 2017 classification.
Endpoints: Complete remission (CR), overall survival (OS), progression-free survival (PFS).
Analysis: Kaplan–Meier survival analysis, subgroup comparisons (log-rank), chi-square for proportions.





Results

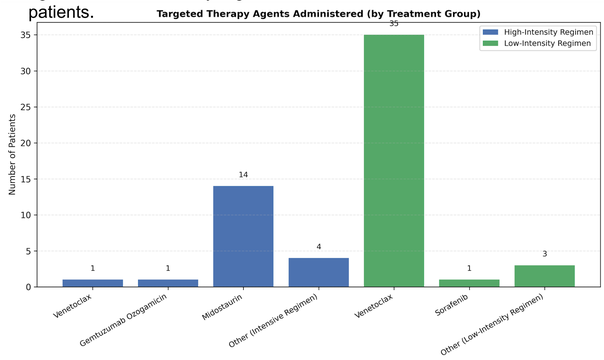
A total of 891 adult AML patients were analyzed (median age: 58 years; 54.9% male). According to WHO classification, AML-NOS was the most common subtype (55.8%), and by ELN 2017 risk groups, 24.7% favorable, 60.8% intermediate, and 14.5% adverse risk were identified. Extramedullary involvement was observed in 4.4%, and FLT3-ITD (15.5%) and NPM1 (19.9%) mutations were the most frequent molecular abnormalities.
Regarding treatment, 74.1% received high-intensity induction (mainly 7+3), while 25.9% received low-intensity regimens (primarily azacitidine). Targeted therapies were more often used in the low-intensity group (19.1% vs. 3.4%, p<0.001).
Response rates favored high-intensity regimens (CR: 70.2% vs. 35.9%; PD: 9.8% vs. 30.1%; p<0.001). Adding targeted therapy notably improved CR in low-intensity patients (35.9% → 51.4%) and reduced PD (30.1% → 14.3%).
Survival outcomes varied by ELN risk. Favorable-risk patients had superior 1-year OS (54.1%) and median OS not reached, while intermediate- and adverse-risk groups showed median OS of 16.2 and 14.1 months (p<0.001).
In elderly patients (≥60 years), 7+3 induction and low-intensity + targeted therapy achieved better survival than non-targeted low-intensity regimens.
ECOG performance status strongly influenced outcomes. Patients with ECOG 0–1 had higher CR (67.2% vs. 53.4%) and longer median OS (32.2 vs. 11.2 months). Overall, 65.3% of eligible patients proceeded to allogeneic hematopoietic stem cell transplantation.

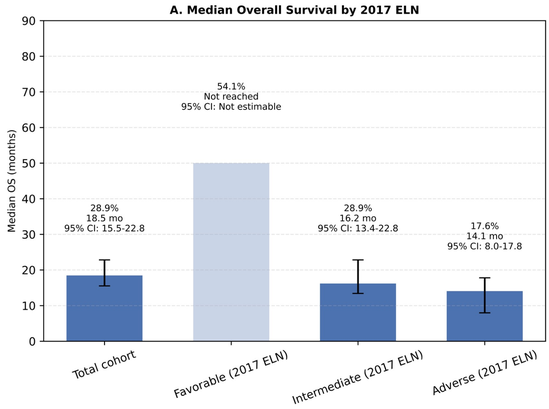
Discussion

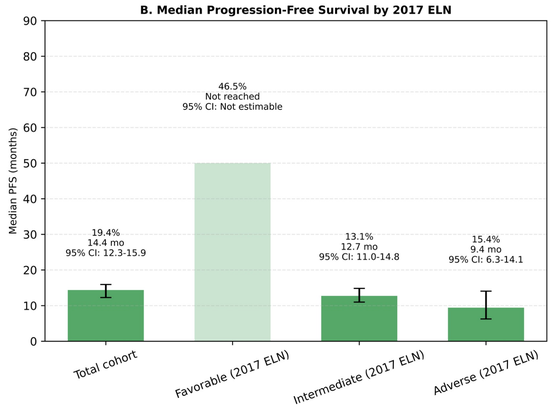
ELN 2017 risk classification and ECOG strongly predict OS and PFS.
Intensive chemotherapy remains standard, but low-intensity + targeted therapy improves CR rates.
Registry-based data essential for refining personalized treatment and improving access to allo-HSCT.

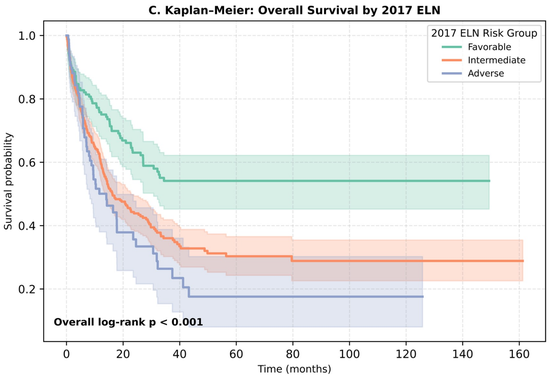
Conclusion

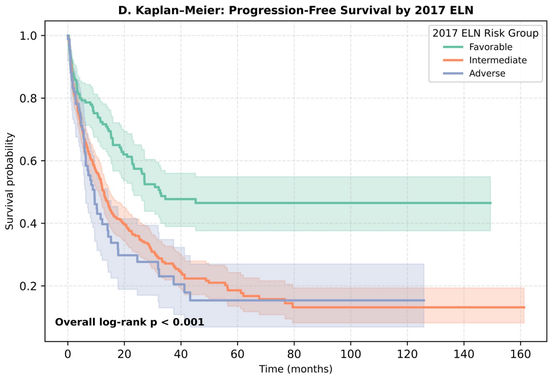
In a large real-world Turkish AML cohort, prognosis is driven by disease biology, performance status, and treatment intensity. Integration of targeted agents into low-intensity regimens offers measurable benefit in selected patients.











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