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Overcoming economic barriers: AML treatment and prognosis in low-income patients

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INTRODUCTION

Acute myeloid leukemia (AML) poses a significant financial burden, particularly for low-income patients.

AIM

This study aimed to explore the characteristics and prognostic factors specific to low-income patients with AML and evaluate the cost-effectiveness of treatment strategies in this demographic.

METHOD

We conducted a retrospective analysis of 182 low-income patients with non-M3 AML, diagnosed between January 2020 and December 2022. Patients were classified using FAB and WHO criteria. Characteristics and prognostic factors were compared with a control group from The Cancer Genome Atlas (TCGA) cohort.

RESULTS

All low-income patients opted for chemotherapy over hematopoietic stem cell transplantation (HSCT).

Poor overall survival (OS) was correlated with higher age, WBC count, PT, APTT, and LDH levels, and lower HB and serum calcium levels. Independent prognostic factors included age, WBC count, APTT, complete remission(CR) after induction treatment, and prognostic risk stratification ($P < 0.05$).

The median OS for low-income patients was significantly lower than the TCGA HSCT subgroup (12.1 months vs. 27.4 months, $P < 0.05$), particularly for the high-risk subgroup (9.3 months vs. 12.2 months, $P < 0.05$). Notably, young low-income patients (<60 years) had a poorer OS compared to the TCGA cohort (14.2 months vs. 49.8 months, $P = 0.016$), especially the high-risk TCGA HSCT subgroup (11.2 months vs. 26.4 months, $P < 0.05$).

However, achieving CR in low-income patients did not significantly differ in OS compared to the TCGA HSCT subgroup (18.0 months vs. 27.4 months, all $P > 0.05$).

The direct hospitalization costs for low-income patients in Henan, China, were significantly lower than those in the US and UK, suggesting that cost-effective treatment strategies can yield comparable outcomes.

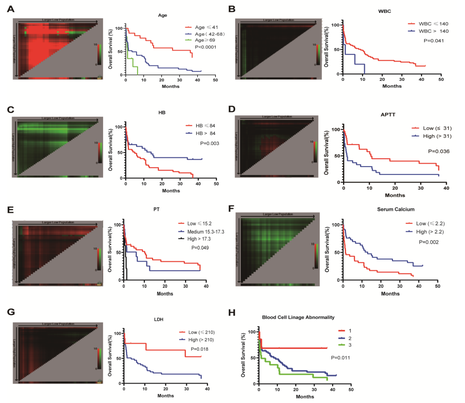


Figure 1. Optimizing Cutoff Values for Clinical Characteristics in Analyzing OS of Patients (A) Age, (B) WBC, white blood cell;, (C) HB, hemoglobin level, (D) APTT, activated partial thromboplastin time, (E) PT, prothrombin time, (F)Serum Cacium, (G) LDH, lactate dehydrogenase, (H) Blood linage abnormality.

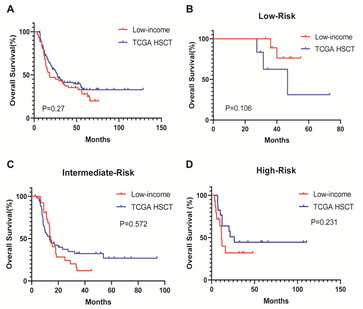


Figure 2. Kaplan–Meier OS curves of low-income patients achieved CR was similar to the TCGA HSCT subgroup

CONCLUSIONS

Low-income AML patients, especially the young high-risk subgroup, have significantly poorer outcomes compared to the TCGA HSCT subgroup.

Achieving complete remission may be a key factor in improving outcomes for low-income AML patients, especially those unable to afford expensive treatments.

Cost-effectiveness strategies should be considered for low-income patients with AML.

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