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Overall Survival and Prognostic Factors in Atypical Chronic Myeloid Leukemia (BCR::ABL-negative): A SEER Population-Based Analysis (2000-2022)

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INTRODUCTION

Atypical chronic myeloid leukemia (aCML), BCR::ABL-negative, is a rare and aggressive myeloid neoplasm with limited population-level survival data.

AIM & OBJECTIVE

To evaluate overall survival (OS) and prognostic factors in patients with aCML using a large national cancer registry cohort.

METHODS

Retrospective cohort study using the SEER 17 registries (2000-2022). Patients with BCR::ABL-negative aCML were identified by SEER site and morphology codes; cases with known age, malignant behavior, complete survival data, and follow-up >0 days were included. The primary endpoint was OS from diagnosis to death or last follow-up. Kaplan-Meier analysis estimated OS overall and by age group, sex, and race (log-rank test), and multivariable Cox proportional-hazards regression evaluated independent predictors of mortality.

CONCLUSIONS

In this SEER population-based cohort of BCR::ABL-negative aCML, overall survival remained poor (median ~14 months), with advanced age the dominant prognostic factor; sex and year of diagnosis were not independently associated with survival. These findings support age-informed risk stratification and highlight the need for more effective therapies.

RESULTS

A total of 304 patients were included; at last follow-up, 53 (17%) were alive and 251 (83%) had died. Median OS was 14 months (IQR 6-29). The cohort was predominantly male (61%) and White (79%). OS differed significantly by age group (log-rank P<0.0001) but not by sex (P=0.93) or race (P=0.94). In multivariable Cox regression (reference: 70-74 years), younger age groups had significantly lower mortality: 45-49 y (HR 0.08; P<0.001), 50-54 y (HR 0.24; P<0.001), 55-59 y (HR 0.52; P=0.027), 60-64 y (HR 0.58; P=0.042), and 65-69 y (HR 0.56; P=0.017). Sex and year of diagnosis were not independently associated with OS.

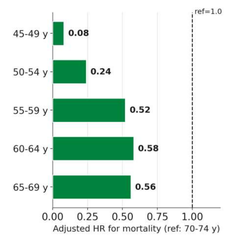

Figure. Multivariable Cox hazard ratios for mortality by age group (reference 70-74 years). Younger age was strongly protective.

Metric	Value
Patients (N)	304
Died / Alive	251 (83%) / 53 (17%)
Median OS	14 months (IQR 6-29)
Male / White	61% / 79%
OS by age (log-rank)	P<0.0001

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REFERENCES

1. Data source: SEER Program, National Cancer Institute.
2. Analyses performed on de-identified, aggregated records; this study did not constitute human-subjects research.