FREQUENCY AND PREDICTORS OF CARDIOVASCULAR MORTALITY IN ACUTE LYMPHOBLASTIC LEUKEMIA: INSIGHTS FROM THE SEER DATABASE

M.E.U. Rehman[1], F. Faraz[1], H. Khan[2], W. Ullah[2], S. Maqbool[3], I. Khan[4], N. Aziz[5], B. Maryam[6], A. Ashfaque[7], R. Afshan[8], A. Iftikhar[9], M. Husnain[9]

1 Rawalpindi Medical University, Rawalpindi, Pakistan. 2 Lady Reading Hospital, Peshawar, Pakistan. 3 Centerpoint Medical Center, Independence, MO. 4 NYC Health + Hospitals, New York City, NY. 5 Wyckhoff Heights Medical Center, New York, NY. 6 University of Oklahoma Health Sciences Center, Oklahoma City, OK. 7 Rochester General Hospital, Rochester, NY. 8 Detroit Medical Center, Wayne State University, Detroit, MI. 9 The University of Arizona, Tucson, AZ, USA

THE UNIVERSITY OF ARIZONA

Introduction

As modern chemotherapy regimens continue to improve the prognosis of acute lymphoblastic leukemia (ALL), cardiovascular mortality (CVM) has emerged as a significant barrier to long-term survival. This study used data from the Surveillance, Epidemiology, and End Results (SEER) database to determine the frequency and predictors of CVM in ALL.

Methods

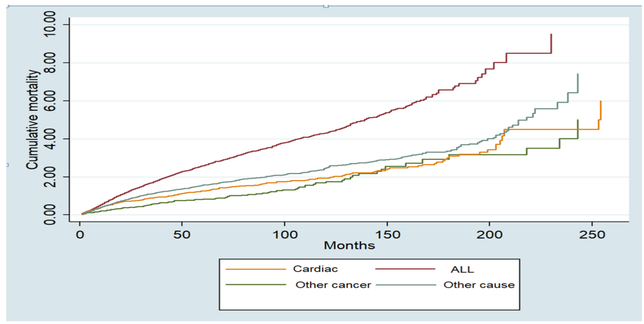
A retrospective cohort study was conducted using the SEER database. Patients with ALL diagnosed between 2000 and 2021 were included. Patients with incomplete survival data, unknown cause of death, or diagnosis via death certificate were excluded. Sociodemographic characteristics were compared between patients with CVM and patients without CVM. Cox proportional regression was used to construct multivariate models to predict all-cause mortality and CVM in patients with ALL.

Results

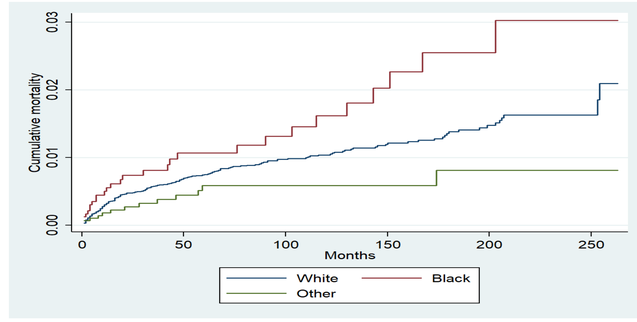
Data from 32,594 patients with ALL were retrieved. The mean age of patients was 27.4±26.2 years. Among the 11,619 reported deaths, 9,975 were attributed to ALL and 282 were due to cardiac causes. CVM was more common among Black people, married patients, and those who did not receive chemotherapy ($p<0.05$).

Results

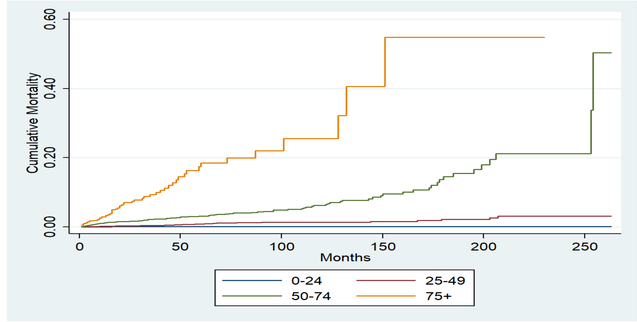
Significant predictors of worse cardiac-specific survival (CSS) were age >75 years (aHR, 277.418; 95% CI, 143.479–536.389), male sex (aHR, 1.329; 95% CI, 1.032–1.712), and Black race (aHR, 1.615; 95% CI, 1.087–2.400). CSS was significantly greater in patients who received prior chemotherapy (aHR, 0.412; 95% CI, 0.308–0.551).



Cumulative Mortality stratified by COD



CVM stratified by race



CVM stratified by age

Conclusion

Our study highlights that cardiovascular mortality is more common in older patients, males, and Black people. Further research is necessary to develop suitable cardiovascular surveillance strategies targeting high-risk populations.

Correspondence

Ahmad Iftikhar, MD

aiftikhar@arizona.edu

Department of Medicine, University of Arizona, Tucson, Arizona.