Analysing the Shifting Trends of Chronic Myeloid Leukemia-Related Mortality in the United States: A 22-Year Retrospective on Progress and Persistent Disparities (1999–2020)

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Introduction

Chronic Myeloid Leukemia (CML) is a rare hematologic cancer marked by abnormal white blood cell growth. Mortality rates for CML have significantly decreased with the advent of targeted therapies. However, demographic disparities in access to treatment and early diagnosis still impact outcomes.

Aim

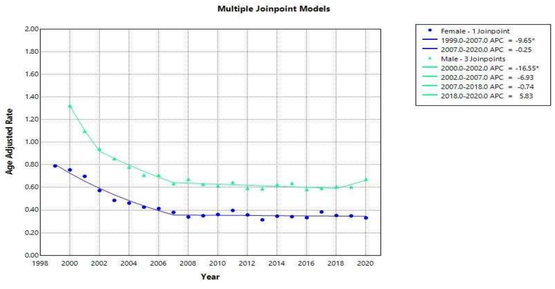
To analyze national mortality trends from CML among adults aged ≥25 in the US from 1999 to 2020, particularly focusing on regional and demographic variables to highlight emerging trends and disparities.

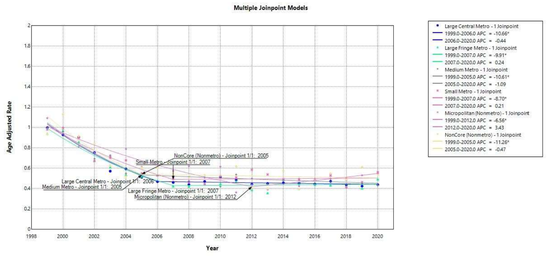
Methods

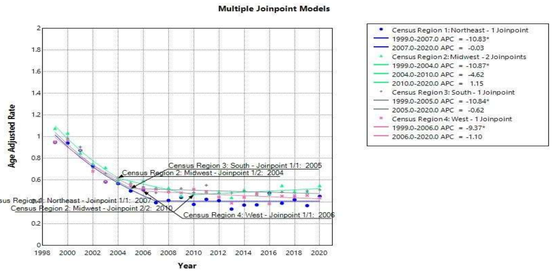
We analyzed CDC WONDER data (1999–2020) for the United States adults aged 25 and older. Mortality cases were identified using ICD-10 for CML (C92.1). Age-adjusted mortality rates (AAMRs) per 100,000 people were categorized by gender, race/ethnicity, region, and urban-rural classification. Joinpoint regression calculated average annual percent changes (AAPCs) with 95% confidence interval (CI).

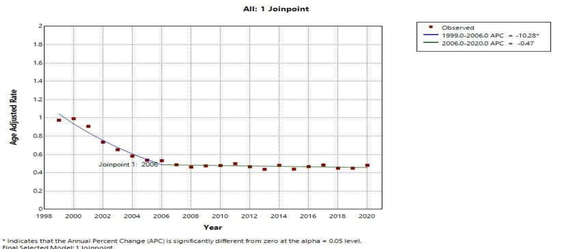
Results

Between 1999 and 2020, there were 25,960 deaths due to CML in the US adults aged ≥25. Across the overall population, AAMRs declined markedly from 1999 (0.97) to 2020 (0.48) with an AAPC of -3.85% (95% CI: -4.30 to -3.39). Throughout the study period (1999-2020), males (0.72) had higher overall AAMR than females (0.43), but both groups showed notable declines (AAPC males: -3.39; 95% CI: -4.04 to -2.79 vs. AAPC females: -3.94%; 95% CI: -4.42 to -3.46). Non-Hispanic (NH) Black population displayed the highest overall AAMR (0.60) followed by NH White population (0.54) and Hispanics (0.43). Geographically, the residents of South displayed the highest AAMR (0.59), followed by Midwest (0.58), West (0.51) and Northeast (0.50). Disparities were observed between urban and rural areas, with non-metropolitan regions exhibiting higher overall AAMR (0.60) as compared to metropolitan regions (0.53) (AAPC non-metropolitan: -3.19%; 95% CI: -4.00 to -2.31 vs. AAPC metropolitan: -3.94%; 95% CI: -4.45 to -3.39).









Conclusion

Between 1999 and 2020, age-adjusted mortality rates due to CML declined significantly. Despite these reductions, notable disparities were observed particularly in males, NH Black population, residents of South and non-metropolitan regions. Overall decreasing trends in CML-related mortality emphasizes the need for sustained efforts to address these inequities and ensure equitable access to quality healthcare ultimately striving towards better health outcomes for all.

Key words

Chronic Myeloid Leukemia, Epidemiology, CDC WONDER, Leukemia