Analysing the Shifting Trends of Acute Lymphocytic Leukemia Mortality: A 25-Year Analysis of Progress and Persistent Epidemiological Disparities (1999–2023).

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Introduction

Acute lymphocytic leukemia (ALL) mortality trends in the United States have shown significant improvements over the decades, with advancements in treatment contributing to higher survival rates. However, disparities persist across racial, socioeconomic, and geographic groups, highlighting the need for equitable access to care and targeted interventions to address these gaps.

Aim

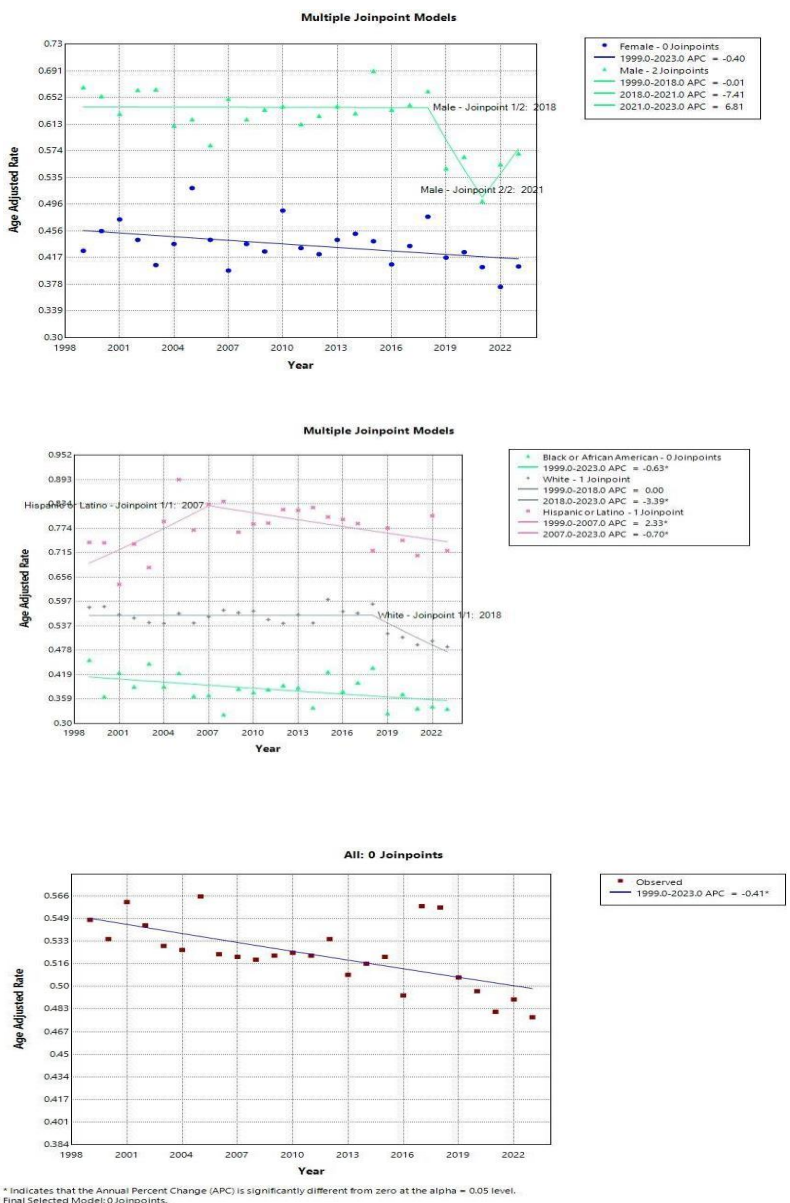
To highlight the epidemiological disparities in ALL patients.

Methods

The data was extracted from the death certificates provided by the CDC WONDER database from 1999 to 2023 for US adults aged 25 and older. ALL age-adjusted mortality rates (AAMRs) per 100,000 people were identified using ICD-10 codes (C91.00) and, data was stratified by gender, race/nationality, region, and urban-rural classification, along-with annual percent changes (APCs) with 95% confidence intervals (Cis).

Results

The total deaths reported from 1999 to 2020 were 2,445 with AAMR decreased from 0.548 in 1999 to 0.496 in 2020, along-with APC of -0.41% during the period of 1999 to 2023. The overall APC for non-metro was -2.49% during 1999-2009 and 0.85% in 2009-2020. APC for metropolitan areas was -0.17% during 1999-2020. The APC for Northeast was 0.27% during 1999-2017 and it sharply decreased to -5.17% in 2017-2023. APC for Midwest was -0.41% in 1999-2023, while for West was 1.17% in 1999-2012 that decreased to -2.05% during 2012-2023. APC for African Americans was -0.63% during 1999-2023, while for White Americans it remained constant from 1999-2018 and decreased to -3.39% during 2018-2023. For Latino population it was 2.33% in 1999-2007 and decreased to -0.70% from 2007 till 2023. APC value for female population was -0.40% during 1999-2023. APC for males was 0.01% during 1999-2018 and it decreased to -7.41% from 2018 to 2021. However, APC for males drastically increased to 6.81% during the 2021 to 2023 period.



Conclusion

In conclusion, the mortality trends of acute lymphocytic leukemia (ALL) in the US show significant improvements due to advances in treatment and early detection. However, disparities in survival rates persist, especially a recent surge in deaths for the male population during 2021-2023 period, which highlights the need for continued research and targeted interventions to further reduce ALL-related mortality.

Key words

Acute Lymphocytic Leukemia, Epidemiology, CDC WONDER, Leukemia

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