Sharp Rise in Major Cardiovascular Diseases–Related Mortality Among Acute Myeloid Leukemia Patients: Epidemiological Trends and Disparities in United States Adults Aged 25 and Above (1999–2020)

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Keywords

Acute Myeloid Leukemia, Cardiovascular Disease, CDC Wonder, Epidemiology

Context

Acute Myeloid Leukemia (AML) patients can develop clonal hematopoiesis, increasing the possibility of major cardiovascular diseases (CVDs) and mortality. The interplay between these conditions can exacerbate hemodynamic instability and influence treatment outcomes.

Objectives

This study aims to navigate the emerging epidemiological disparities in mortality in patients with AML and major CVDs (ischemic heart diseases, heart failure, hypertensive heart disease, cerebrovascular disease) and to identify the factors influencing these trends.

Methods

Death certificates from CDC WONDER database were searched to obtain age-adjusted mortality rates (AAMR) by using ICD-10 codes for AML (C92.0) and major CVDs (I10-15, I20-25, I50, I60-69) in patients aged ≥25 years in the United States (US) between 1999 and 2020. Joinpoint regression was used to calculate Annual Percent Change (APC) and Average APC (AAPC) per 100,000 and data was stratified by age, gender, race, and geographics.

Conclusion

Notable disparities were observed in particularly older adults, males, non-Hispanic, Non-metropolitian and Midwest residents, emphasizing the rising mortality burden of AML and major CVD. These disparities suggest the importance of focused treatments and thorough investigation into new variables influencing patient outcomes.

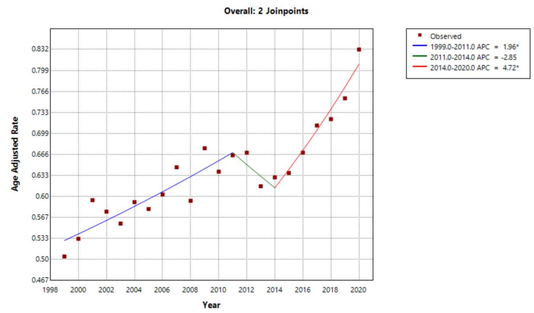
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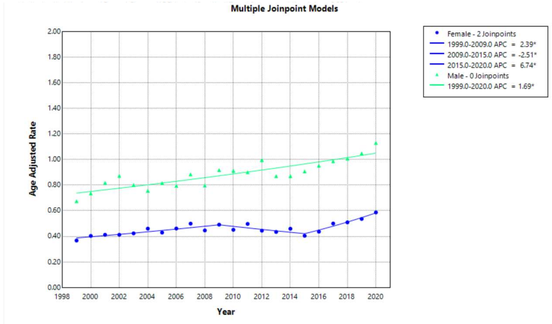
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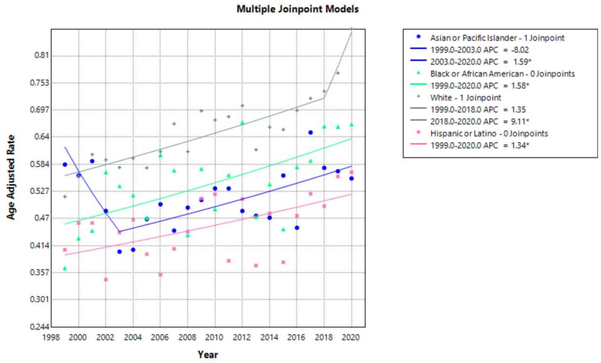
Results

A total of 30,360 deaths occurred during the period, with an increase in AAMR from 0.51 in 1999 to 0.83 in 2020 (AAPC= 2.03%; 95% CI: 1.77 to 2.48). The AAMR sharply increased from 2014 (0.63) to 2020 (0.83) with APC of 4.72% (95% CI: 3.4 to 8.26). Males showed consistently higher AAMR as compared to females (0.90 vs. 0.45). The ≥65 years age-group experienced higher AAMR (2.65) as compared to 45-64 age-group (0.32) (AAPC= 2.32%; 95%CI: 1.65 to 2.77 and AAPC= 1.24%; 95% CI: 0.43 to 2.23 respectively). Non-Hispanics (NH) White population experienced highest overall AAMR (0.67), followed by NH Asian population (0.54), NH Black population (0.54), and lastly Hispanic population (0.46) experienced the lowest mortality rates. The residents of Midwest experienced the highest overall AAMR (0.72), followed by West (0.7), South (0.60) and Northeast (0.60). Non-metropolitian residents showed a slightly higher AAMR (0.70) than metropolitian residents (0.65) (AAPC= 1.90%; 95%CI: 1.26 to 2.69 vs. 1.78; 95% CI: 1.13 to 2.28 respectively).

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AAMR: Age-adjusted Mortality Rate, AAPC: Average Annual Percent Change, NH: Non-Hispanic