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MAPPING THE SILENT DIVIDE: TWO DECADES OF RISING AML MORTALITY AND RENAL FAILURE ACROSS THE US

Authors, H. NOOR[1], N. AYUB[1], M. SIDDIQUI[1], A. KOMAL[1] (Presenter), R. BANO[1], M. ASGHAR[1], E. UMAIR[1], L. YUMN[1], K. ASGHAR[1], S. YOUNAS[1], A. AISHA[1], S. HASSAN[1] AND M. SIDDIQUI[1]

1. Nishtar Medical University, Multan, Punjab, PK

Introduction

Acute Myeloid Leukaemia (AML) is an aggressive blood cancer; renal failure exacerbates prognosis by limiting treatments. Causes include leukemic infiltration, tumour lysis syndrome, or nephrotoxic therapies. Despite advances, care disparities persist. Analysing epidemiological trends and addressing inequities may improve outcomes.

Aim

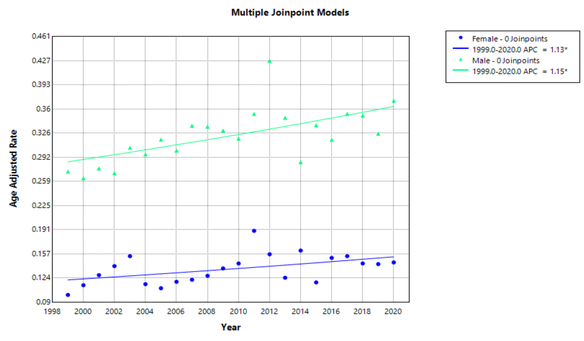
To evaluate long-term age-adjusted mortality trends associated with AML and renal failure in the United States from 1999 to 2020, and to identify demographic, regional, and urbanization-based disparities.

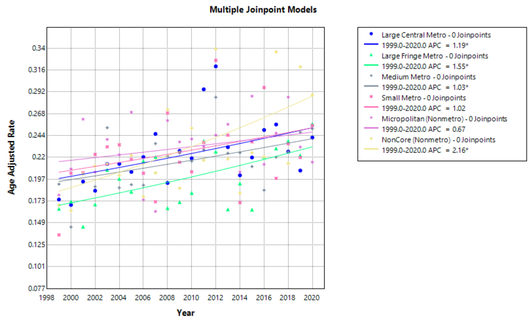
Methods

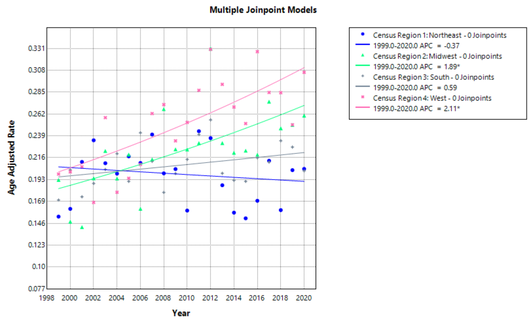
Death certificates from the CDC WONDER database (1999–2020) were analyzed for mortality with AML (ICD-10 codes C92.0) and renal failure (ICD-10 codes N17-N19). Age-adjusted mortality rates (AAMRs) per 100,000 people and annual percent changes (APCs) were calculated via Joinpoint regression and stratified by sex, region, and urbanization. Disparities were calculated with 95% confidence intervals (CIs). Inadequate cohorts were excluded. Asterisks (*) denote statistical significance ($p < 0.05$).

Results

A total of 10,650 individuals died from 1999-2020 related to comorbid AML and renal failure. Annual percent changes increased more among men from 1999-2020 [1.15* (0.48,1.82)], followed by women [1.13* (0.16, 2.12)]. Among census regions, the West exhibited the sharpest increase [2.11* (1.16,3.06), followed by the Midwest [1.89* (0.81, 2.97). Urbanization tiers showed widespread increase: Non core showed the sharpest increase [2.16* (0.87, 3.47)], followed by large fringe metro [1.55* (0.62, 2.48)], large central metro [1.19* (0.16,2.23)], medium metro [1.03* (0.15, 1.93)]. Age-adjusted mortality rates (1999-2020) significantly increased among men[0.27 (0.23-0.31) to 0.37 (0.33-0.41)], West [0.20 (0.15–0.25) to0.31 (0.26–0.35)], and NonCore [0.17 (0.11-0.25) to 0.29 (0.22-0.38)].







Conclusion

Between 1999 and 2020, age-adjusted mortality rates of AML with renal failure continued to rise over the years. Mortality trends remained higher in men, the West, and NonCore areas, possibly due to environmental exposures, industrial pollutants, and higher obesity rates. Addressing these disparities is essential to improving AML outcomes.

Key Words

Acute Myeloid Leukemia (AML), Renal Failure (RF), CDC Wonder Database

Contact Information

Email: noorhuzaifa222@gmail.com
Email: ak.research@outlook.com

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