Mortality Trends and Disparities Due to Acute Myeloid Leukemia Coexisting With Agranulocytosis: A 26-Year CDC WONDER Analysis From 1999–2024

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INTRODUCTION

Acute myeloid leukemia (AML) and agranulocytosis are not very prevalent causes of mortality and morbidity in the United States; once they coexist, their deadly progression and immunosuppression, increasing susceptibility to infections, bleeding, and anemia, necessitate evaluating their mortality trends. This study aims to study the 26-year concurrent mortality trends between these two diseases using CDC Wonder.

METHOD

Through CDC WONDER, mortality data were extracted as a multiple cause of death from 1999 to 2024 for Acute Myeloid Leukemia (C92.0) and Agranulocytosis (D70). The age-adjusted mortality rate (AAMR) per 100,000 persons, by sex, race, census, 2013 urbanization, state, and place of death, as well as the crude mortality rate (CMR) by age, were reported and analyzed using Joinpoint regression software to evaluate the annual percent change (APC) and average annual percent change (AAPC).

CONCLUSIONS

The mortality rates due to AML and anemia are not prevalent; however, their adverse effects on the immune system and rapid progression make timely diagnosis and intervention immensely crucial.

RESULTS

From 1999 to 2024, a total of 8167 deaths were attributed to AML and Agranulocytosis, with the inpatient medical setting reporting the highest number of deaths (85.14%). From 1999 to 2016, the mortality rate increased with an APC of 1.8956 ($p > 0.000039$), followed by a significant rise in mortality, with AAMR rising from 0.12 in 2016 to 0.19 in 2021 (APC: 7.1480; $p>0.008239$), and then slightly decreased to 0.17 by 2024 (APC: −3.2459; $p > 0.3105$). Men and women reported almost similar trends, with AAPCs of 2.7079 and 2.7032, respectively. Adults aged 75 and above recorded the highest AAMR of 0.4388 (AAPC: 5.81; $p < 0.000001$). Asian or Pacific Islander individuals had a slightly higher AAMR of 0.166 across the study period (AAPC: 0.3; p-value 0.68). Geographically, non-metropolitan areas showed a higher AAPC of 3.5 (p: 0.000835) than metropolitan areas (AAPC: 2.798; $p<0.000001$), while the West and Northeast regions reported almost the same and the highest AAMRs of 0.1519 and 0.1515, respectively. Among states, Vermont recorded the highest AAMR of 0.27 from 1999 to 2020, and from 2021 to 2024, Idaho reported the highest AAMR of 0.33.

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