Trends and Disparities in Mortality Attributable to Renal Failure Among Adult Patients with Hematological Malignancies in the United States: A Population Based 2005-2020 Analysis

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Introduction

- Advancements in therapeutic interventions have improved survival outcomes in patients with hematologic malignancies
- Nonetheless, renal failure remains a notable contributor to overall mortality. We aimed to evaluate mortality trends and disparities for renal failure and hematologic malignancies in the U.S. using CDC WONDER database

Methods

Data source: CDC WONDER database (2005–2020), adults ≥25 years.

ICD-10 codes:

- Renal failure (N17-N19) and hematologic malignancies (C81-C96) were used
- Hematologic malignancies were further subclassified into five major groups: Hodgkin lymphoma (HL), non-Hodgkin lymphoma (NHL), multiple myeloma (MM), lymphoid leukemia (LL), and myeloid leukemia (ML)

Analysis:

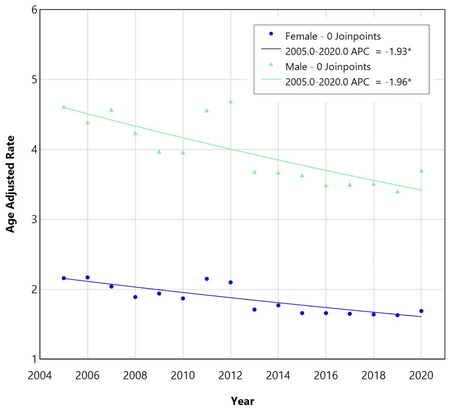
- Age-adjusted mortality rates (AAMR) per 100,000 population were extracted
- Trends were analyzed by sex and race
- Joinpoint regression was used to calculate annual percent changes (APC) in AAMR with 95% CI

Results

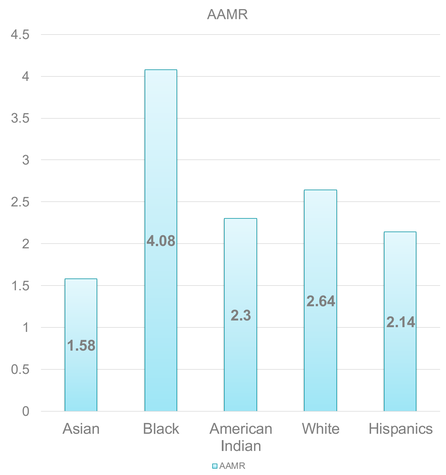
- Between 2005 and 2020, **1,072,068** deaths were attributed to hematologic malignancies in the U.S
- Among these, 99,087 (**9.2%**) also involved renal failure
- Males accounted for 60,998 deaths and females for 38,089. AAMRs were higher in males (3.92) than females (1.82)



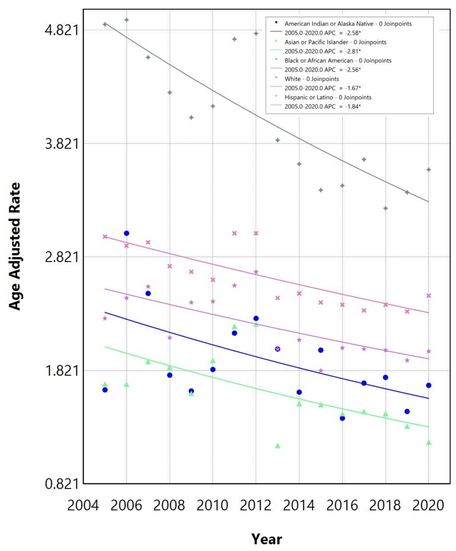
- Both sexes showed significant mortality declines: females (APC –1.93), males (–1.96)



- By race, AAMRs were highest in Black (4.08), followed by White (2.64), American Indian (2.30), Hispanic (2.14), and Asian (1.58) populations



- The highest mortality trend declines were seen in Asians (APC –2.81), American Indians (–2.58), and Blacks (–2.56), followed by Hispanics (–1.84) and Whites (–1.67)



Mortality trends by subgroup analysis:

- Mortality in Non-Hodgkin Lymphoma declined in both females (APC –1.60) and males (–1.81), with the greatest decline among Black individuals (–2.10)
- For Hodgkin Lymphoma, mortality trend decline was significant in males only (APC –4.21), racial analysis was limited
- Multiple Myeloma showed significant mortality decline in females (–3.14), and males (–2.86). In terms of race for MM, APC was significant for Black (–2.88), White (–2.92), and Hispanic individuals (–2.68)
- In Lymphoid Leukemia, significant decline was observed in Black or African American individuals (APC –2.78) only
- Myeloid Leukemia demonstrated slight non-significant increase in mortality, with significant increase only among White individuals (APC +0.92)

Conclusion

- While overall mortality has declined, persistent disparities by race and gender remain
- This implies that we need more focused research to improve outcomes and address these findings