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FRACTURED LIVES | UNVEILING SEX, RACIAL, ETHNIC, AND URBAN-RURAL DISPARITIES IN MULTIPLE MYELOMA RENAL FAILURE MORTALITY ACROSS THE USA: A RETROSPECTIVE ANALYSIS OF 21 YEARS

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Introduction

The clonal growth of bone marrow plasma cells and the generation of monoclonal immunoglobulin, or M protein, are hallmarks of multiple myeloma (MM), a hematologic malignancy. This results in several clinical symptoms, including kidney dysfunction, lytic bone lesions, anemia, and hypercalcemia.

Aim

To analyze multiple myeloma and renal failure-related mortality trends in the United States from 1999 to 2020.

Methods

We analyze MM-RF-related Age-adjusted rates from 1999 to 2020 using Joinpoint regression analysis using the CDC WONDER database. The analyses were stratified by level of urbanization, gender, race/ethnicity, and census region. Models with a maximum of four join points were chosen using permutation tests. For statistical significance ($p<0.05$), was used. APC values and their significance were used to categorize trends as either steady, declining, or growing.

Results

Total Deaths: 52,116 MM-RF-related deaths from 1999 to 2020

Gender-Stratified Trends:

Females: Initially rose from 1999-2002 (APC: 3.64%), then declined from 2003–2020 (APC: -3.57%)

Males: Fluctuating trends

Race/Ethnicity:

There was a consistent decline in NH Asians (-3.11%), NH Blacks (-2.98%), and Hispanics (-2.69%) from 1999 to 2020

NH Whites: Increase from 1999–2002 (5.22%), then decline after 2002 (-2.98%).

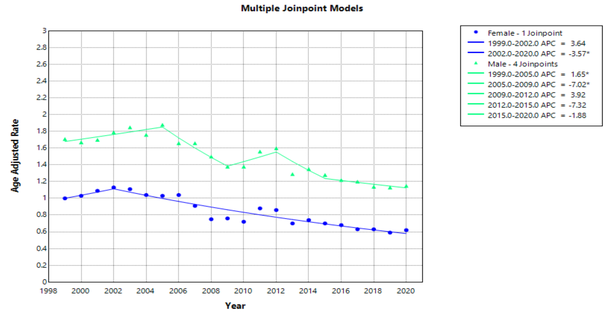
Urbanization:

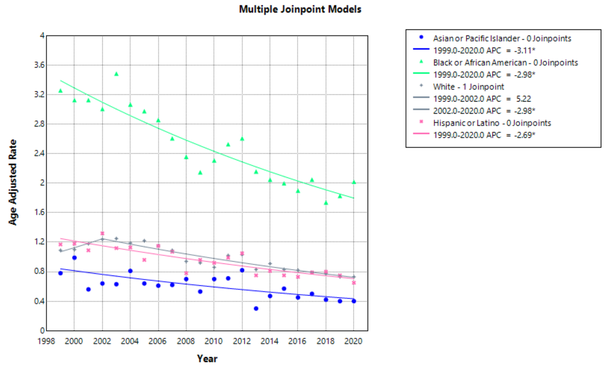
Large Central Metro: Rise (1999-2003; APC: 2.07%), then fall (2003-2020; APC: -3.42%)

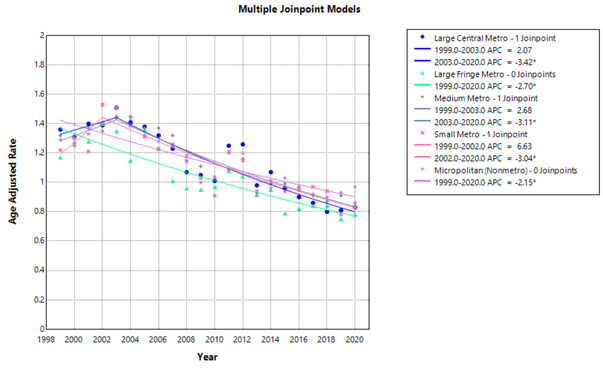
Medium Metro: Rise (1999-2003: APC: 2.68%), then fall (2003-2020: APC: -3.11%).

Small Metro: Surge (1999-2002: APC: 6.63%), then decline (2002-2020: APC:-3.04%).

Large Fringe and Micropolitan: Consistent decline (1999-2020; APC:; -2.70%, -2.15%, respectively).







Conclusion

Compared to 1999, the AAMR has declined whether looking at census regions, gender, race/ethnicity, and urbanization level analysis. We believe this may be due to a better understanding or awareness of the disease. These numbers can be brought down with further research and the provision of healthcare across the US.

Key Words

Multiple Myeloma (MM), Renal Failure (RF), CDC Wonder Database

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