Trends and Disparities in Ischemic Heart Disease and Multiple Myeloma-Related Mortality in United States Adults Aged 25 and above: A 22-Year Population-Based Analysis (1999–2020)

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Keywords

Multiple Myeloma, Ischemic Heart Disease, CDC Wonder, Epidemiology

Context

Multiple Myeloma (MM) is a plasma cell neoplasm that affects almost 1 in 108 men and 1 in 103 women in the United States. Renal impairment, amyloidosis, thrombosis and endothelial dysfunction associated with MM can worsen the outcomes of ischemic heart diseases, and can even lead to death.

Objectives

This study highlights the mortality trends due to MM associated ischemic heart disease in the US from 1999 to 2020 across various epidemiological variables.

Methods

Data was extracted utilizing death certificates from CDC WONDER (1999-2020) of US adults aged 25 and above, involving ICD-10 Codes for Ischemic Heart Disease (I20-I25) and Multiple Myeloma (C90.0) using Age-Adjusted Mortality Rate (AAMR) per 1,00,000 individuals. Join point regression (Version 5.3.0 National Cancer Institute) was used to assess Annual Percent Changes (APC) and Average APCs (AAPCs) with 95% Confidence Interval (CI).

Conclusion

Despite recent advancements, ischemic heart diseases remain a major determinant of poor prognosis in MM. Although there was a decrease in overall mortality, but discrepancies across various groups underscore the need for targeted interventions.

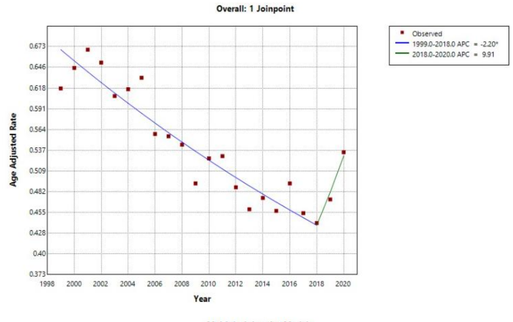
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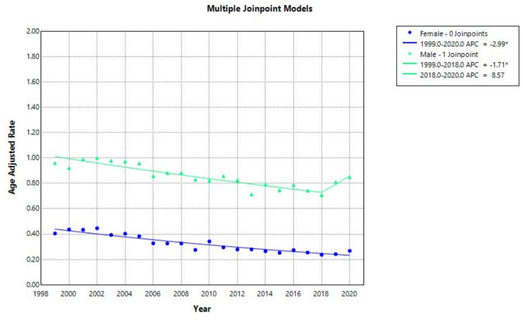
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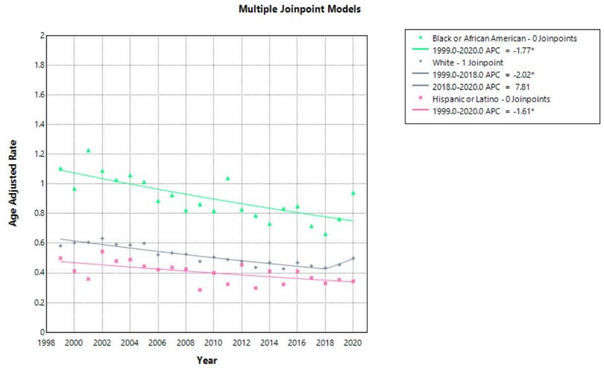
Results

A total of 25,468 deaths were reported. AAMR decreased from 1999 (0.62) to 2020(0.53) with AAPC of -1.11% (95%CI, -2.26 to 0.05). Mortality was consistently lower in females (AAMR: 0.33, AAPC: -2.99%, 95% CI: -3.49 to -2.50) than males (AAMR: 0.86, AAPC: -0.77%, 95% CI: -1.86 to 0.32). Northeast had highest AAMR (0.59) followed by Midwest (0.56), West (0.52) and South (0.51). All regions exhibited decreasing trend, with Northeast having the most pronounced AAPC (-2.79%, 95% CI: -3.49 to -2.09). AAMR was higher for NH Blacks (0.89) than NH Whites (0.50) and Hispanics (0.38). NH Blacks showed the most decrease (AAPC: -1.77%, 95%CI: -2.50 to -1.04). AAMR was highest for District of Columbia (0.84) and lowest for Nevada (0.25). AAMR was higher for 65+ years age group (2.53) than 45-64 years group (0.12) but 65+ years group showed a greater decline (AAPC: -1.14%, 95% CI: -2.26 to -0.02). Mortality in non-metropolitian areas (AAMR: 0.55, AAPC: -1.35%, 95% CI, -2.21 to -0.49) was higher than metropolitian areas (AAMR: 0.54, AAPC: -1.09%, 95% CI, -2.43 to 0.26).

Ischemic Heart Disease and Multiple Myeloma-Related Mortality in United States







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