Rising Trends in Multiple Myeloma and Major Cardiovascular Diseases-related Mortality among United States Older Adults: A Retrospective Epidemiological Analysis (1999-2020)

Authors: Ayesha Khan MBBS[1], Azka Aisha MBBS[1], Diya Rathi MBBS[2], Tehreem Asghar MBBS[3], Noor ul Ain MBBS[4], Mustafa Alsaadi MBBS[5], Fareeda Brohi MBBS[6], Syed Muhammed Salman Hassan MBBS[1], Muhammad Abdullah Ali MBBS[7], Muhammad Younas MBBS[8], Mohammad A. Zaied MBBS[9], Muhammad Usman Arshad MBBS[10], Mahnoor Zafarullah MBBS[11], Arisha Akhtar BDS[12], Mahnoor Fatima MBBS[13], Zainab Anfaal MBBS[7], Umama Alam MBBS[7], Maheen Sheraz MBBS[14]

Affiliations: [1]Nishtar Medical University and Hospital, Multan, Punjab, Pakistan. [2]Dow University of Health Sciences, Karachi, Sindh, Pakistan. [3]Akhtar Saeed Medical & Dental College, Lahore, Punjab, Pakistan. [4]FMH College of Medicine and Dentistry, Lahore, Punjab, Pakistan. [5]Jabir Ibn Hayyan University for Medical and Pharmaceutical Sciences, Najaf, Najaf Governorate, Iraq. [6]Peoples University of Medical and Health Sciences for Women, Nawabshah, Sindh, Pakistan. [7]Khyber Medical College, Peshawar, Khyber Pakhtunkhwa, Pakistan. [8]Gomal Medical College, Dera Ismail Khan, Khyber Pakhtunkhwa, Pakistan. [9]Jordan University of Science and Technology, Irbid, Irbid Governorate, Jordan. [10]Shalamar Medical and Dental College, Lahore, Punjab, Pakistan. [11]Shifa College of Medicine, Islamabad, Punjab, Pakistan. [12]Ziauddin University, Karachi, Sindh, Pakistan. [13]King Edward Medical University, Lahore, Punjab, Pakistan. [14]Continental Medical College, Lahore, Punjab, Pakistan

Keywords

Multiple Myeloma, Cardiovascular Disease, CDC Wonder, Epidemiology

Context

Multiple Myeloma (MM) and cardiovascular disease (CVD) frequently coexist, posing challenges in clinical management. The interplay between these conditions can exacerbate hemodynamic instability and influence treatment outcomes. This study aims to evaluate the impact of major CVDs on the prognosis, management strategies, and clinical outcomes of patients with MM.

Objectives

We hypothesize that there are epidemiological disparities in mortality in patients with MM and major CVDs (ischemic heart diseases, heart failure, hypertensive heart disease, cerebrovascular disease) in the United States (US).

Methods

We conducted a comprehensive retrospective analysis of the CDC WONDER mortality data from 1999 to 2020 for individuals aged ≥65 years in US by utilizing ICD-10 codes for multiple myeloma (C90), and major cardiovascular diseases (I10-15, I20-25, I50, I60-69). Age-adjusted mortality rates (AAMR) and crude mortality rates (CMR) per 100,000 were calculated, and trends were analyzed by gender, race, region, age-groups and residential status. Joinpoint regression was used to calculate average annual percentage changes (AAPC) with 95% confidence intervals (CI).

Conclusion

MM and CVD-related mortality have risen significantly in recent years, with notable disparities across gender, race, and geographic regions. These findings highlight the urgent need for tailored public health strategies to mitigate the evolving burden of MM and CVD and promote equitable healthcare outcomes

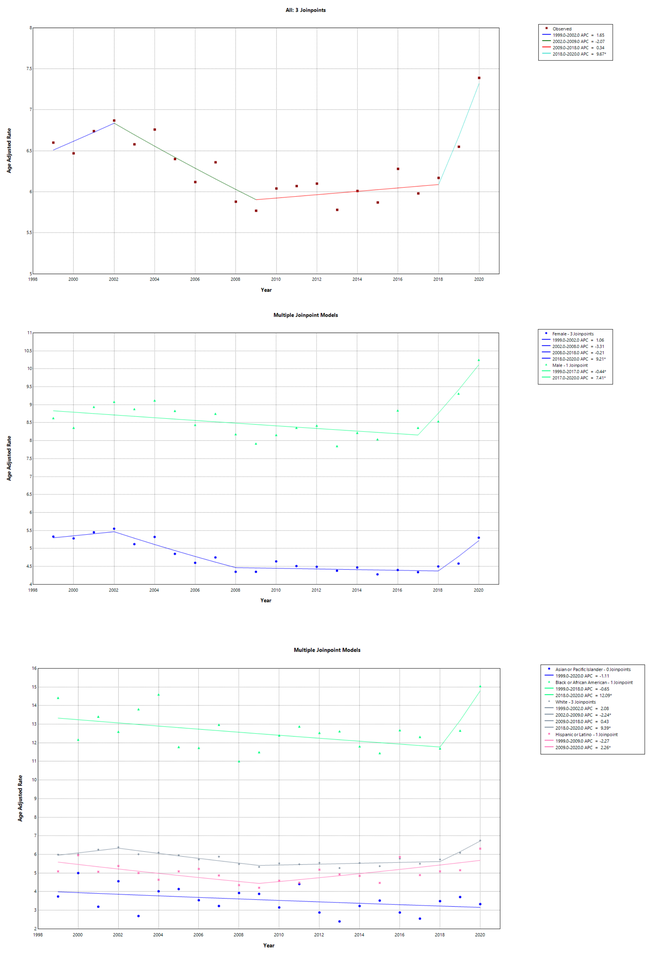
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Results

Between 1999 and 2020, mortalities due to MM with CVD caused 57,408 deaths in adults aged ≥65 years. AAMRs increased from 1999 (6.6) to 2020 (7.39), with an overall AAPC of 0.562% (95% CI: 0.12 to 1.10). Males exhibited higher overall AAMR compared to females (Females: 4.72 vs. Males: 8.65). Non-Hispanic (NH) Black individuals had the highest AAMR (12.64), followed by those of NH White (5.84), Hispanic (5.05), and NH Asian or Pacific Islander (3.42). The Midwest region reported the highest AAMR (6.66), followed by West (6.31), Northeast (6.18) while South reported the lowest (6.13). The highest CMR was observed in patients aged 85+ (13.4), followed by 75-84 years (8.5) and 65-74 years (3.2). Non-metropolitan areas reported higher AAMR (6.64) than metropolitan areas (6.21). The AAMR for District of Columbia (9.90) and North Dakota (9.38) are on top percentiles of states

Multiple Myeloma and Major Cardiovascular Diseases-related Mortality in the United States



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