A 22-YEAR SNAPSHOT OF DEMOGRAPHIC AND REGIONAL DISPARITIES IN MULTIPLE MYELOMA PATIENTS WITH RENAL FAILURE (1999–2020)

S. Najafi[1], F. Zafar[1], M. Manan[1], T. Saeed[1], M. Safdar[1], S. Baqar[2], H. Abbas[3], M. Saeed[2], S. Bagewadi[4,5], M. Basit[6], S. Naqvi[7]

1. Services Institute of Medical Sciences, Lahore, Pakistan.
2. King Edward Medical University, Lahore, Pakistan.
3. Royal Lancaster Infirmary, Lancaster, United Kingdom.
4. Mayo Clinic, Rochester, MN, USA.
5. Nalanda Medical College, Patna, Bihar, India.
6. United Health Services Programs-Wilson Medical Center, Johnson City, NY, USA.
7. Myeloma Center, University of Arkansas for Medical Sciences, Little Rock, AR, USA

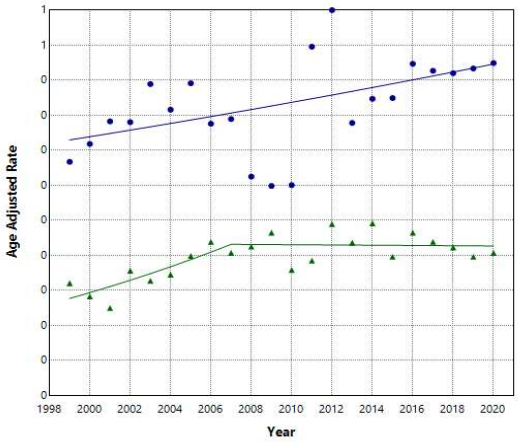
Introduction

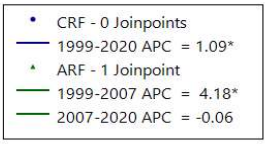
Renal failure (RF) is one of the most observed complications of multiple myeloma (MM). Considering its detrimental consequences, we designed a retrospective study to analyze mortality trends in United States adults diagnosed with MM and RF, comparing acute renal failure (ARF) and chronic renal failure (CRF) from 1999 to 2020. Mortality patterns were stratified by gender, race, urbanization level, and geographic region to identify demographic and regional disparities.

Methods

- The CDC WONDER Multiple Causes of Death database was utilized to analyze age-adjusted mortality rates (AAMR) per 100,000 population among adults (age ≥25 years) diagnosed with MM (ICD-10: C90) and RF, including ARF (ICD-10: N17) and CRF (ICD-10: N18).
- Annual percentage change (APC) was calculated using Joinpoint regression.

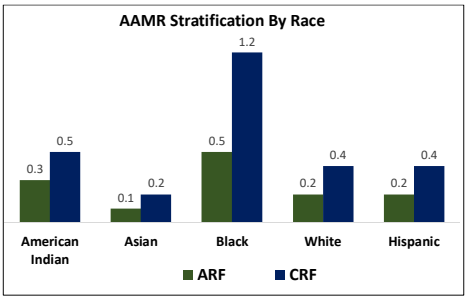
Results



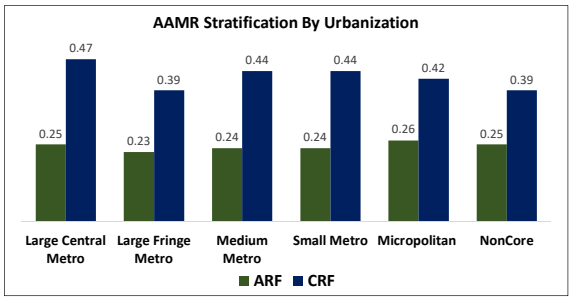


Temporal AAMR Trends of CRF And ARF In MM

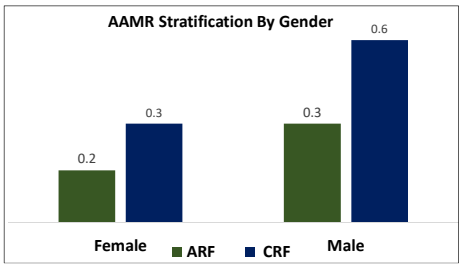
From 1999 to 2020, 20,703 deaths were attributed to CRF among MM patients, with an increase in CRF-related AAMR from 0.35 to 0.48 over the 22-year period, resulting in an APC of 1.09 (P<0.05). Among the 11,251 ARF-related mortalities reported in 22 years, an increase in AAMR was noted, from 0.20 in 1999 to 0.24 in 2007, with an APC of 4.18 (P<0.05). This was followed by non-significant variation through 2020, where the AAMR remained at 0.24 (APC: -0.06).



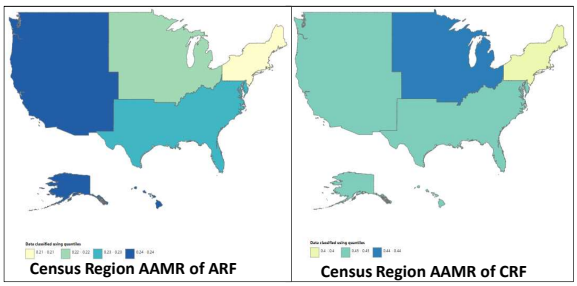
Gender stratification revealed a higher CRF-related AAMR among males (0.58) compared with females (0.32). Similarly, among ARF patients, males had a higher AAMR (0.32) compared with females (0.17).



Classification based on urbanization level showed that the highest AAMR in CRF patients was within large central metropolitan populations (0.47). Conversely, ARF-related AAMR (0.26) was highest among patients in non-metropolitan areas.



African Americans had the highest AAMR in both groups: 1.2 in patients with CRF and 0.5 in patients with ARF.



Highest AAMR was in the Midwest for patients with CRF (0.44), and in the West region for ARF patients (0.23).

Discussion

Our study highlights a significant rise in RF-related mortality among MM patients in the United States. The highest mortality rates were observed among males and African American patients. These findings highlight the need for targeted interventions to address demographic and regional disparities.