Examining Racial Disparities in the Incidence and Survival of Primary Myelofibrosis: Insights from SEER Database and an Institutional Cohort (2000-2020)

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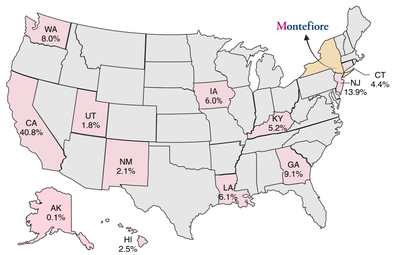
Background and aims

- Primary myelofibrosis (PMF) is an aggressive subtype of BCR-ABL negative myeloproliferative neoplasms
- Characterized by bone marrow fibrosis and clonal proliferation
- Studies about the impact of race and ethnicity on tumors consistently showed worse outcomes among minorities
- The prognostic impact of socio-racial determinants among patients with PMF is not well defined.
- This study aims to:
  - Examine the socio-racial characteristics as determinants of survival in PMF patients in the 2000-2020 Surveillance, Epidemiology, and End Results (SEER) database.
  - Investigate and compare findings of the national database with our single center PMF experience

Methods

- The prognostic impact of socio-racial determinants among patients with PMF is not well defined.
- The incidence, sociodemographic characteristics and survival of PMF patients were obtained and analyzed from the SEER-17 registries, November-2022 submission (2000-2020)
  - Included:
    - Patients with ICD-3 codes: 9961: Primary myelofibrosis
  - Excluded:
    - Cases with no histological confirmation
    - No active follow up (death certificate or Autopsy only).
- Medical records of primary myelofibrosis patients treated at Montefiore medical center were identified and analyzed

Study sample distribution across the United States



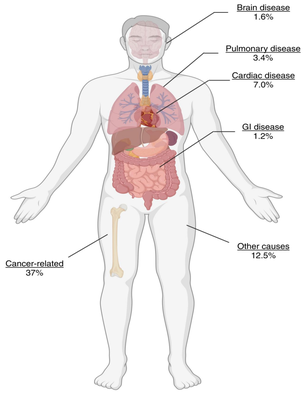
Results

SEER Database:

	Category	Nonblack	Black	P value
Mean Age (in years)*		69	64	**< 0.001**
Sex*	Female	1943	217	**< 0.001**
	Male	3007	236	
Marital status*	Unmarried	2110	287	**< 0.001**
	Married	2840	166	
Annual Income*	< $70,000	2227	270	**< 0.001**
	> $70,000	2721	183	
Radiotherapy*	No/unknown	4847	442	0.607
	yes	103	11	
Chemotherapy*	No/unknown	3036	271	0.546
	Yes	1914	182	

Sociodemographic characteristics of PMF patients from SEER database

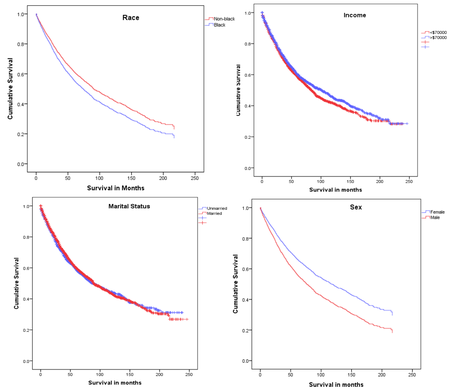
Causes of death among PMF patients in SEER database



5403 patients diagnosed with PMF were included. 60% were male. The median age was 69±13 years (range 0-98 years old). Majority of the sample were white (82%) followed by Blacks (8.4%) and others/unknown (9.6%). The leading cause of death was attributed to PMF (37.1%), followed by cardiac diseases (7%), pulmonary diseases (3.4%) and GI diseases (1.2%).

	Subgroup	HR	95%CI	P value
Age*	-	1.042	1.038-1.046	**<0.001**
Sex*	Female	Ref		**<0.001**
	Male	1.399	1.277-1.533	
Race*	Not Black	Ref		**0.032**
	Black	1.202	1.016-1.422	
Marital status	Unmarried	Ref		0.502
	Married	0.969	0.885-1.062	
Year of diagnosis*	-	0.972	0.964-0.981	**<0.001**

Multivariate Forward stepwise Cox regression survival analysis

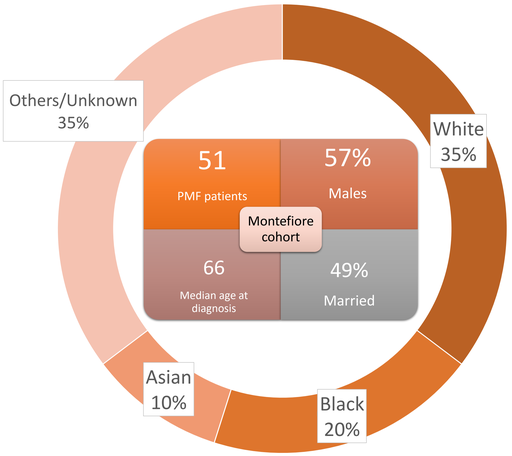


Estimated overall survival was 69% and 42% at 2- and 5- years, respectively. The median overall survival was 46 years old. A forward stepwise Cox regression analysis was performed to identify factors affecting survival. Worse survival was noted in older age, male sex, black race and earlier year of diagnosis. Marital status and income were not significant predictors of survival. Being married decreased all-cause mortality rate only.

Montefiore Database:

Genetic mutation	Black	Non-black
JAK2	7/10 (70%)	29/37 (78%)
CALR	2/10 (20%)	6/37 (16%)
MPL	0/10 (0%)	1/37 (3%)
Triple negative	1/10 (10%)	1/37 (3%)
ASXL1	4/10 (40%)	2/37 (5%)
SRSF2	2/10 (20%)	3/37 (8%)
TET2	0/10 (0%)	3/37 (8%)

Genetic mutation distribution across our Montefiore PMF patients



51 patients diagnosed and treated for PMF at Montefiore Medical Center were identified. Genetic mutation profile was overall similar between blacks and non-blacks across all mutations. Majority of the patients received Ruxolitinib (55%) followed by Hydroxychloroquine (20%). 16% of the patients were enrolled in clinical trials.

Conclusion

- The study emphasizes the potential impact of socio-racial factors on PMF outcomes.
- Similar mutation distribution found in black and non-black patients, consistent with earlier findings. This challenges the notion that genetic differences are the primary drivers of PMF outcomes among different racial backgrounds.
- There is a need to focus on addressing social disparities to ensure equitable access to high-quality care for all PMF patients.
- Efforts to mitigate these disparities could encompass tailored treatment strategies, improved patient education and enhanced access to healthcare resources.
- The study is limited by its retrospective nature and the number of black patients.

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