DISPARITIES IN ASCT AND CAR-T ACCESS IN MULTIPLE MYELOMA: EVIDENCE FROM REAL-WORLD STUDIES IN THE ERA OF NOVEL THERAPIES

A. SHARMA[1], S. SIDHU[2], S. HALDULE[2], S. KUMAR[3]

1. Yale New Haven Hospital, Department of Internal Medicine, New Haven, CT, USA
2. University of Connecticut, Department of Internal Medicine, Farmington, CT, USA
3. Neag Comprehensive Cancer Center, University of Connecticut Health, Farmington, CT, USA

INTRODUCTION

- Multiple myeloma (MM) incidence is approximately two-fold higher in Black patients, with onset at a younger age; MGUS prevalence is 2–3 times higher.
- Reported rates of high-risk cytogenetics and 1q21 gain are comparable between Black and White patients, so tumour biology does not readily explain outcome gaps.
- Autologous stem cell transplant + lenalidomide maintenance remains standard for eligible patients; BCMA-directed CAR-T is now approved from first relapse.
- Racial and socioeconomic disparities in treatment access in the novel therapy era remain poorly characterized.

AIM

- To characterise racial and socioeconomic disparities in MM treatment utilisation across diverse US populations.
- To quantify Black representation in the pivotal trials that supported CAR-T approval.
- To test whether observed survival differences are explained by disease biology or by differential access to guideline-concordant care.

METHOD

- Structured evidence synthesis of PubMed-indexed observational studies and registry analyses published 2020-2026.
- Independent dual-reviewer screening was performed; clinical and methodological heterogeneity precluded formal pooling.
- Sources: US National Cancer Database, Connect MM Registry, Flatiron Health database, single-center myeloma registry, and seven CAR-T pivotal trials spanning academic and community settings.
- Outcomes: transplant rates, guideline-concordant therapy use, trial enrolment by race, and overall survival.

CONCLUSIONS

- Non-Hispanic Black patients had lower SCT utilization as compared Non-Hispanic White across all sociodemographic strata
- Insurance, comorbidity, facility type, and facility volume were significant predictors of SCT receipt in all racial groups.
- Race, ethnicity and insurance independently predicted maintenance therapy underuse and treatment interruptions.
- First-line triplet regimen use was comparable by race, while first-line ASCT was lower among Black patients.
- In the trials that led to CAR-T approval, Black participants who received CART-T and had reported efficacy varied from 2-5%. Lowest participation to prevalence ratio of 0.2 was seen in MM.
- Black patients who received SCT had longer overall survival, likely reflecting access-driven selection bias.

RESULTS

Table 1. Data sources

Data source	Setting	Patients (n)	Contribution to this analysis
National Cancer Database	Hospital-based registry; ~1,500 CoC-accredited facilities. SCT as initial therapy, diagnoses 2004–2013	111,799	First-line SCT utilization by race-ethnicity, and sociodemographic predictors of SCT receipt within each group
Connect MM Registry	Prospective disease registry; predominantly community practice	3011	First-line SCT and triplet use; overall survival by race among transplanted patients
Flatiron Health database	Longitudinal EHR-derived; community-weighted oncology network	4,614	First-line triplet regimen and SCT receipt; real-world PFS and OS
Single-centre myeloma registry	Tertiary referral centre with standardised MM care pathways	1,002	Maintenance therapy underuse and unplanned treatment interruption
Pivotal CAR-T trials (Drugs@FDA)	Seven registrational trials across haematological malignancies; one in myeloma	1,057	Black enrolment and prevalence-corrected participation-to-prevalence ratio

Table 2. Effect estimates by outcome and data source

Outcome	Source (n)	Comparison	Estimate	Interpretation
First-line SCT utilization	NCDB (111,799)	NHB vs NHW, unadjusted	10.3% vs 14.4%	Lowest of any racial-ethnic group, below Hispanic (13.2%) and NH Asian (15.5%). Insurance, comorbidity, facility type and facility volume predicted SCT in all groups; higher income predicted SCT for NHW and Hispanic but not Black patients.
First-line SCT receipt	Flatiron (4,614)	16.5% vs 21.9%	−5.4 percentage points	Approximately 25% lower in relative terms, despite a younger Black cohort.
First-line triplet regimen	Flatiron (4,614)	50.1% vs 48.1% (VRd)	No meaningful difference	Access to drug therapy is comparable; access to the procedure is not.
Maintenance therapy underuse	Single centre (1,002)	Race/ethnicity and insurance	aOR 1.98 (1.12–3.48)	Roughly two-fold odds of guideline-discordant omission, persisting inside a single standardised centre.
Unplanned treatment interruption	Single centre (1,002)	Race/ethnicity and insurance	aOR 4.14 (1.78–9.74)	Large point estimate, but the wide interval indicates few events; treat as directional.
Black participation, pivotal CAR-T trials	7 trials (1,057)	Trial participants vs disease population	1–12 participants per trial (2–5%); myeloma PPR 0.20	Counts apply to participants who received product and had efficacy reported. PPR 0.20 against a 0.80–1.20 parity band is the lowest of any indication examined (large B-cell lymphoma 0.60).
Overall survival after transplant	Connect MM (3011)	Black vs White, transplanted	HR 0.56 (0.35–0.89); p = 0.014	44% lower hazard of death. Conditioning on transplant receipt makes this consistent with index-event bias rather than a biological advantage.

aOR, adjusted odds ratio; CoC, Commission on Cancer; HR, hazard ratio; HSCT, haematopoietic stem cell transplantation; OR, odds ratio; PPR, participation-to-prevalence ratio; SCT, stem cell transplantation; VRd, bortezomib–lenalidomide–dexamethasone. Reference group is non-Hispanic White unless stated. PPR is the percentage of Black trial participants divided by the percentage of Black individuals in the disease population; 0.80–1.20 denotes representation comparable to that population. Heterogeneity precluded pooling; estimates are not combined. Dash denotes a cohort size not specified in the source report.

KEY TAKE AWAYS

- Disparities in MM treatment access persist despite evidence that Black patients receiving standard care achieve comparable or superior outcomes.
- Current NCDB analyses capture transplant receipt but not referral patterns or contemporary regimen selection, limiting inference
- Updated analyses and enrollment mandates are urgently needed.

CONTACT INFORMATION

Saloni Haldule, MBBS · haldule@uchc.edu

REFERENCES

1. Ailawadhi S, Parikh K, Abouzaid S, et al. Racial disparities in treatment patterns and outcomes among patients with multiple myeloma: a SEER-Medicare analysis. *Blood Adv.* 2019;3(20):2986-2994. doi:10.1182/bloodadvances.2019000308
2. Ailawadhi S, Adu Y, Frank RD, et al. Factors determining utilization of stem cell transplant for initial therapy of multiple myeloma by patient race: exploring intra-racial healthcare disparities. Blood Cancer J. 2024;14(1):86. doi:10.1038/s41408-024-01067-x PMID: 38806475
3. Joshi H, Lin S, Fei K, et al. Multiple myeloma, race, insurance and treatment. *Cancer Epidemiol.* 2021;73:101974. doi:10.1016/j.canep.2021.101974
4. Buck T, Hartley-Brown MA, Efebera YA, et al. Real-world multiple myeloma risk factors and outcomes by non-Hispanic Black/African American and non-Hispanic White race/ethnicity in the United States. *Haematologica.* 2024;109(6):1882-1892. doi:10.3324/haematol.2023.282788
5. Al Hadidi S, Schinke C, Thanendrarajan S, Zangari M, van Rhee F. Enrollment of Black participants in pivotal clinical trials supporting US Food and Drug Administration approval of chimeric antigen receptor T-cell therapy for hematological malignant neoplasms. *JAMA Netw Open.* 2022;5(4):e228161. doi:10.1001/jamanetworkopen.2022.8161
6. Ailawadhi S, Jagannath S, Lee HC, et al. Association between race and treatment patterns and survival outcomes in multiple myeloma: a Connect MM Registry analysis. *Cancer.* 2020;126(19):4332-4340. doi:10.1002/cncr.33089