Disparities in Treatment Delays and Survival Outcomes in Diffuse Large B-Cell Lymphoma (DLBCL): A Retrospective Cohort Study

Aneeta Channar, MD[1]; Saumil B.Parikh[1],'Arifa Bibi, MD[2]; Allan L. Louie,MD[1]

1.Rutgers-Jersey City Medical Center, NJ 2.University of Oklahoma, OK

Background

- While R-CHOP-based regimens have transformed DLBCL outcomes, timely treatment initiation remains critical for survival.
- We examined racial and demographic disparities in treatment initiation and their impact on survival among DLBCL patients.

Methods

- Surveillance, Epidemiology, and End Results (SEER) 17 database was queried (2004-2021), covering 26.5% of population. Treatment delay was defined as time from diagnosis to first treatment exceeding 90 days.
- Exclusion criteria included multiple primary cancers, unknown demographic or staging data, and unknown survival time.
- Demographic variables included age, sex, race, ethnicity, marital status, median household income, residential status.
- Predictors were identified with multivariable logistic regression.
- 1:1 propensity score matching (PSM) was employed for balanced survival analyses. Overall survival (OS), and cancer specific survival (CSS) were estimated using Kaplan-Meier model and Cox proportional hazard model was utilized to estimate the magnitude of the difference in survival.
- Data were analyzed using Python v3.11.7.

Fig1: Baseline Characteristics

Total Patients (N=824,353) [Unmatched Cohort]			
	No Delay (n=785,658)	Treatment delayed (n=38,695)	p-value
Age (mean, SD)	64.3 (±13.4)	64.2 (± 11.9)	< 0.073
Demographics: n (%)			
Male	424,056 (54.0)	24,416 (63.1)	< 0.001
Race/Ethnicity			
White	508,647 (64.7)	19,554 (50.5)	< 0.001
Black	89,734 (11.4)	5,421 (14.0)	< 0.001
Asian/Pacific Islander	75,909 (9.7)	4503 (11.6)	< 0.001
American Indian/Alaska Native	6,031 (0.8)	436 (1.1)	0.7373
Hispanic	105,290 (13.4)	8,776 (22.7)	< 0.001
Residential area			
Metropolitan	687,865 (87.6)	35,004 (90.5)	< 0.001
Median Household Income			
≥ 70,000 USD	577,133 (73.5)	29,546 (76.4)	< 0.001

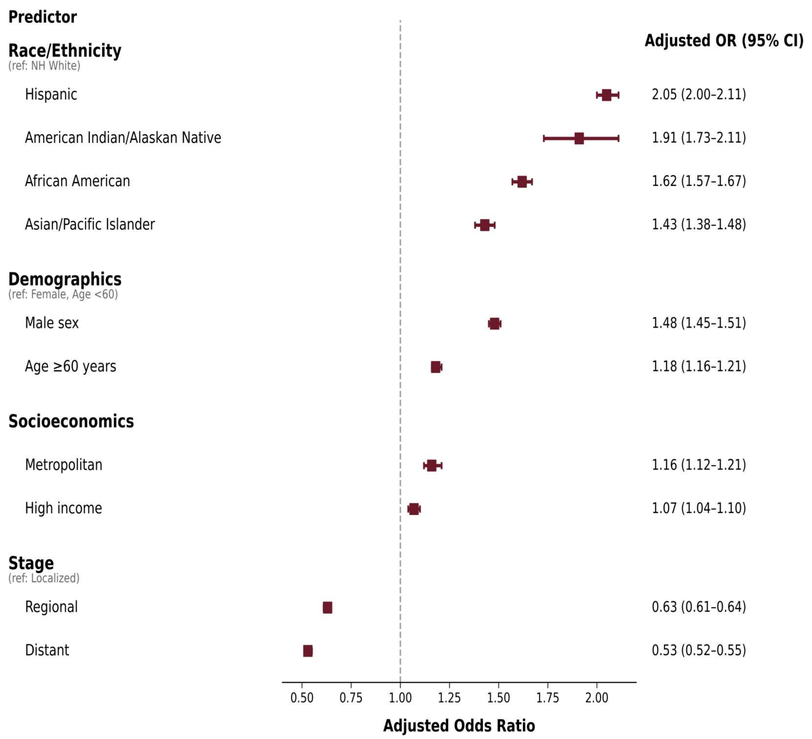

Fig1: Odds Ratio for different subgroups

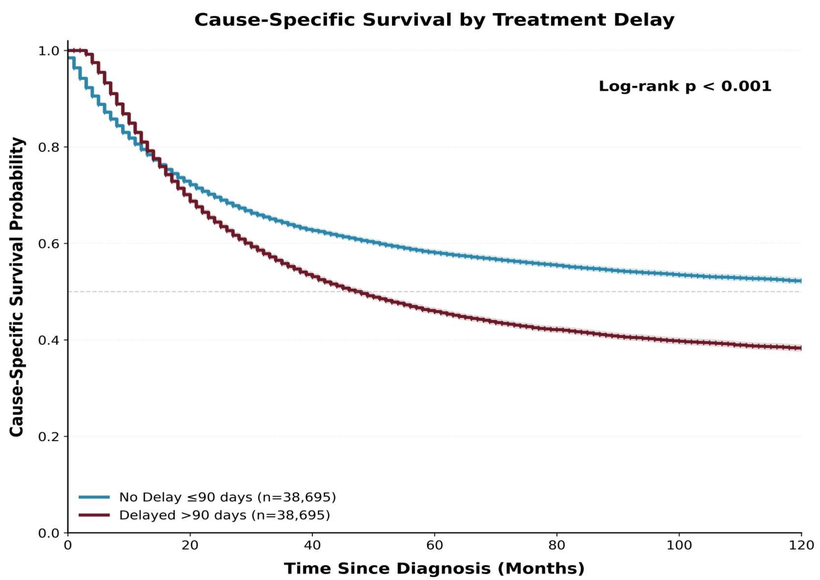

Fig2: Cause-Specific Survival for the cohort

Results

- Of 824,353 patients, 38,695 (4.7%) experienced treatment delay.
- Male sex (aOR 1.48; 95% CI 1.45–1.51), age >60 years (aOR 1.18; 95% CI 1.16–1.21), metropolitan residence (aOR 1.16; 95% CI 1.12–1.21), and high income (aOR 1.07; 95% CI 1.03–1.09) were associated with increased odds of treatment delay.
- Hispanic (aOR 2.05; 95% CI 2.00–2.11), American Indian/Alaska Native [AIAN] (aOR 1.91; 95% CI 1.73–2.11), and Black (aOR 1.62; 95% CI 1.57–1.67) patients were also found to have increased odds of treatment delay.
- Regional (aOR 0.63; 95% CI 0.61–0.64) and distant stage (aOR 0.53; 95% CI 0.52–0.55) were associated with lower odds of treatment delay.
- Post-matching (n=38,695 each), treatment delay was associated with increased risk of cause-specific mortality (HR 1.158; 95% CI 1.135–1.181).
- Factors associated with increased risk included age >60 years (HR 1.31; 95% CI 1.28–1.33), male sex (HR 1.14; 95% CI 1.12–1.16), Black race (HR 1.06; 95% CI 1.03–1.09), AIAN (HR 1.17; 95% CI 1.06–1.28), and Hispanic ethnicity (HR 1.02; 95% CI 1.00–1.05).
- Regional (HR 1.48; 95% CI 1.44–1.51) and distant stage (HR 3.88; 95% CI 3.78–3.97) were also associated with increased risk.
- High income (HR 0.93; 95% CI 0.91–0.95) and later year of diagnosis (HR 0.98; 95% CI 0.982–0.986) were associated with lower risk of mortality, while metropolitan residence had a non-significant risk.

Conclusion

Treatment delay is associated with worse survival, highlighting systemic barriers to equitable care. Paradoxical associations of metropolitan residence and high income with increased delay were attributed to selection bias on sensitivity analyses. Limitations include differential missingness of treatment dates and absence of comorbidity data.

Contact

aneeta.channar@rwjbh.org @AneetaChannar