Regional, racial/ethnic, and socioeconomic disparities and treatment outcomes in patients with hepatocellular carcinoma (HCC) in the US





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INTRODUCTION

Racial/ethnic (R/E) minorities and patients of low socioeconomic status (SES) are reported to have higher mortality related to HCC than their counterparts. Prior studies are limited to administrative datasets without annotation for clinical covariates or represent single-center data with limited generalizability.

The aim of this analysis was to characterize geographic, R/E, and SES disparities in HCC presentation, treatment, and survival among patients with HCC in the US.

METHODS

Cohort

TARGET-HCC is a five year longitudinal observational study of adult participants diagnosed with HCC followed at 44 academic and community sites in the U.S. Enrollment began in January 2017. Data were abstracted from electronic medical records (including imaging, narratives, labs, pathology, procedures, and outcomes) and monitored for completeness and accuracy.

Study Population

925 patients \geq 18 years old with a diagnosis of HCC

Analysis

Multivariable logistic regression with random intercepts for site and Cox proportional hazard models with frailty adjustment were fit with adjustment for age, sex, BMI, liver disease etiology (LDE) and history of alcohol abuse to identify factors associated with early HCC detection, receipt of curative-intent therapy (CIT) and overall survival.

TARGET-HCC SITES



STATEMENT & DISCLOSURES

TARGET-HCC is a collaboration among academic & community investigators, the pharmaceutical industry, and patient community advocates. TARGET-HCC is sponsored by TARGET PharmaSolutions, Inc. TARGET thanks the study staff, nurses, health care providers and patients at each study center for their contributions to this work.

Listings of Principal Investigators and Industry Partners are available upon request by emailing info@targetpharmasolutions.com.

RESULTS

Table 1: Baseline Characteristics of Patients with HCC				
	White Non-Hispanic	Hispanic White	Black	
	N=555	N=69	N=185	
	N(%)	N(%)	N(%)	
Follow-up (Years) Median (n) Min - Max	1.3 (555)	1.3 (69)	1.4 (185)	
	0.0 - 8.4	0.1 - 8.1	0.2 - 7.8	
Age at Diagnosis (Years) Median (n) Min – Max	64.0 (555)	62.0 (69)	63.0 (185)	
	19.0 - 88.0	43.0 - 85.0	29.0 - 87.0	
Gender Male	429 (77.3)	58 (84.1)	128 (69.2)	
Insurance Private Medicare Medicaid Other Supplemental Uninsured Unknown	204 (36.8)	43 (62.3)	52 (28.1)	
	278 (50.1)	15 (21.7)	81 (43.8)	
	59 (10.6)	3 (4.3)	49 (26.5)	
	25 (4.5)	3 (4.3)	6 (3.2)	
	41 (7.4)	2 (2.9)	11 (5.9)	
	9 (1.6)	6 (8.7)	7 (3.8)	
	23 (4.1)	0 (0.0)	2 (1.1)	
Etiologies HCV HBV NAFLD Autoimmune Hepatitis PBC History of Alcohol Abuse Not Available	307 (55.3) 10 (1.8) 58 (10.5) 3 (0.5) 6 (1.1) 61 (11.0) 110 (19.8)	37 (53.6) 3 (4.3) 7 (10.1) 1 (1.4) - 13 (18.8) 8 (11.6)	163 (88.1) 7 (3.8) 2 (1.1) 2 (1.1) 1 (0.5) 3 (1.6) 7(3.8)	
Region, n (%) Midwest Northeast South Southeast West	152 (27.4)	7 (10.1)	22 (11.9)	
	122 (22.0)	5 (7.2)	53 (28.6)	
	47 (8.5)	19 (27.5)	52 (28.1)	
	178 (32.1)	6 (8.7)	42 (22.7)	
	56 (10.1)	32 (46.4)	16 (8.6)	

Categories of white non-Hispanic (60%), Hispanic white (7%), and black (20%) are presented.

Outcomes

- Of the 925 HCC patients, most patients (72%) were diagnosed with early stage HCC, as defined by Barcelona Clinic Liver Cancer (BCLC) staging system. Others were 18% BCLC stage B, 8% BCLC stage C, and 2% BCLC stage D.
- Overall, 249 (27%) underwent curative therapy as their initial treatment, including only 32% of those found at BCLC stage 0/A.
- Embolization was the most common treatment among people on private insurance (53%) and Medicaid (48%).
- Over a median of 1.3 years, 10% of patients died, with 6- and 12-month survival rates of 97% and 94%, respectively.

Table 2: Odds of Early Tumor Detection (BCLC Stage 0/A) Among Patients with Hepatocellular Carcinoma*

	Odds Ratio	95% CI
West Midwest Northeast South Southeast	Reference 0.61 0.91 0.75 0.95	- 0.35-1.07 0.51-1.62 0.41-1.38 0.55-1.64
Race White Non Hispanic African American Hispanic White Asian Other	Reference 0.76 1.16 1.60 1.31	- 0.51-1.14 0.61-2.20 0.62-4.11 0.60-2.87
Insurance Status Private Medicare Medicaid	1.12 1.16 0.97	0.71-1.78 0.73-1.84 0.57-1.64

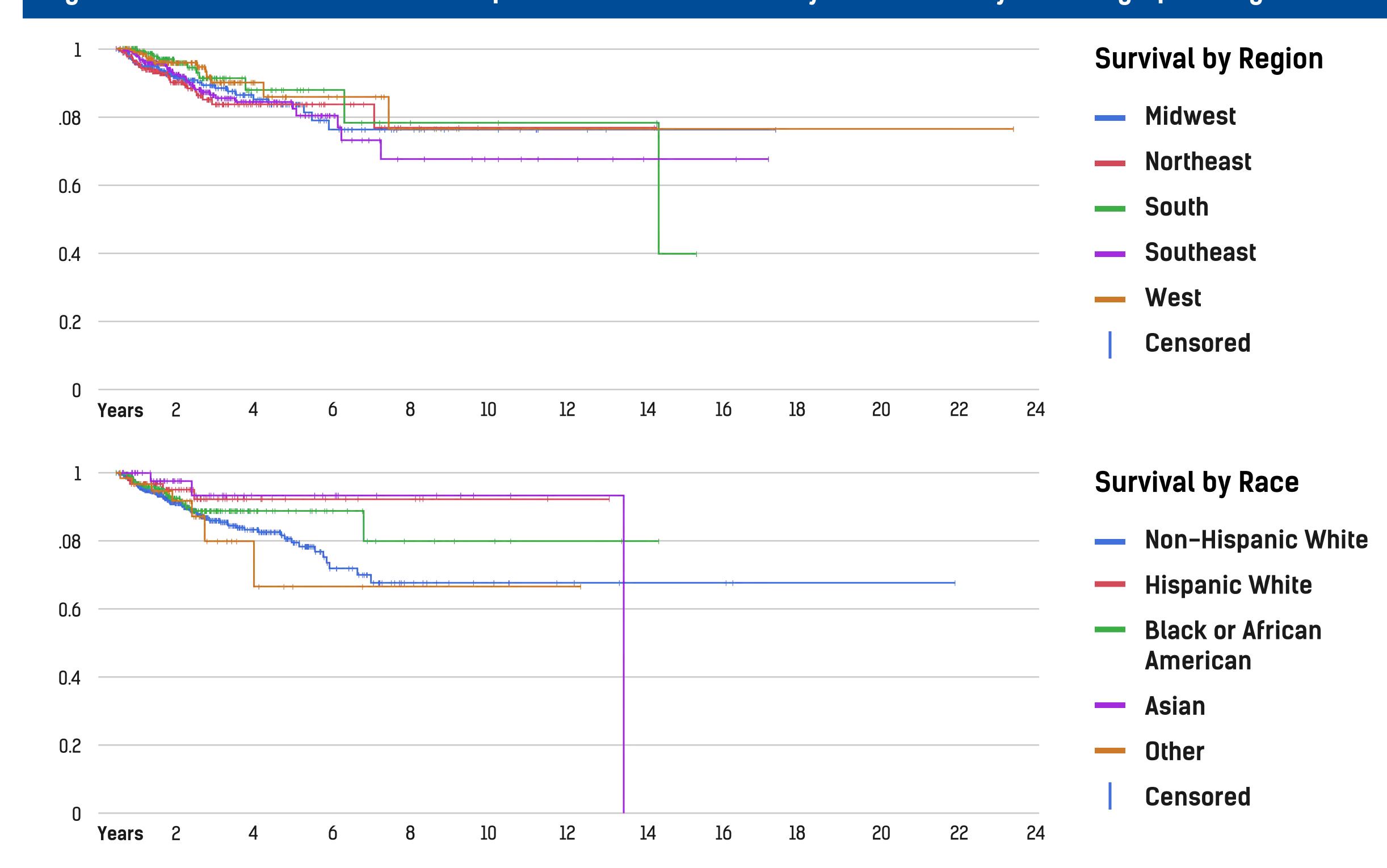
*Model adjusted for: age, sex, liver disease etiology, history of alcohol abuse, insurance status, race, region.

Table 3. Odds of Curative Therapy Among Patients with Early Stage (BCLC 0/A) Hepatocellular Carcinoma*^

Odds Ratio	95% CI
Reference	-
0.87	0.32-2.35
0.49	0.32-2.35
0.99	0.30-3.29
0.61	0.25-1.49
Reference	-
1.07	0.65-1.78
0.74	0.35-1.57
1.54	0.64-3.73
0.71	0.30-1.69
0.51	0.29-0.91
0.71	0.40-1.26
0.50	0.25-0.97
	Reference 0.87 0.49 0.99 0.61 Reference 1.07 0.74 1.54 0.71 0.51 0.71

*Model adjusted for: age, sex, liver disease etiology, history of alcohol abuse, insurance status, race, region.

Figure 1. Survival of Patients with Hepatocellular Carcinoma by Race/Ethnicity and Geographic Region



Limitations

Patients in this sample may not be representative of all patients with HCC in the US.

CONCLUSION

- In this sample of HCC patients, there was no association between geographic, racial, or ethnic disparities in early detection, treatment, and survival.
- Socioeconomic disparities, (e.g. Medicaid coverage) in receipt of curative intent therapy, were identified and warrant further study.