Disparities in Head and Neck Cancer Survival and Treatment by Race and Socioeconomic Status at Jefferson

Wagoner, S., MPH (c)*, Axelrod, R., MD**, Keith, S.W., PhD***, Vervilles, W., MPH (c)*, Zeigler-Johnson, C., PhD, MPH**

*Sidney Kimmel Medical College and Jefferson College of Population Health, TJU

**Department of Medical Oncology, TJU

***Department of Pharmacology and Experimental Therapeutics, TJU

Background

- Disparities in Head and Neck Cancer (HNC) survival between Black and White patients have been well documented[1-3]
- Race has biological and social implications for health[2]
- The roles of socioeconomic status (SES) and HPV in the disparity are debated[4-7]
- Many studies do not include Asian patients, smoking status, HPV, and/or treatment[4]

Aims

1. Assess the individual associations of **Black, White, and Asian race** and neighborhood **SES** on HNC mortality
2. Analyze and assess for a **moderating relationship between race and socioeconomic status** in HNC mortality
3. Investigate **a disparity in receipt of surgical treatmen**t by race and socioeconomic status

Methods

- Jefferson HNC patients diagnosed between 2011-2015
- Variables: demographics (age, sex) and clinical factors (HPV, smoking status, cancer site, cancer stage, treatment)
- Multivariable Cox survival analysis
- Multiple logistic regression to evaluate differences in receipt of surgical treatment

Jefferson
Thomas Jefferson University
HOME OF SIDNEY KIMMEL MEDICAL COLLEGE

Black Patients With Head And Neck Cancer Had Increased Mortality And Were Less Likely To Receive Surgery Relative To Their White Counterparts

Figure 1. Survival Probability by Race

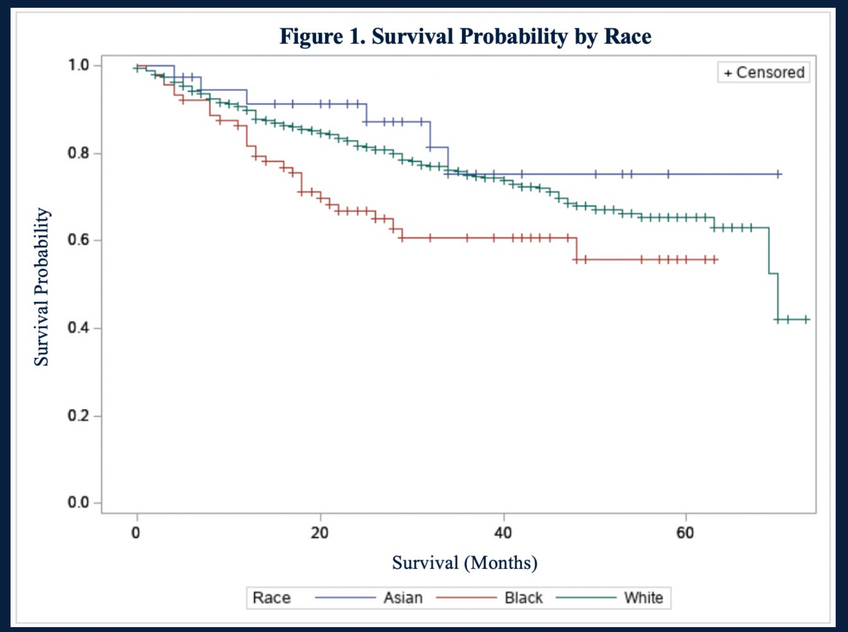

Table 1. Baseline Characteristics by Race and Socioeconomic Status

		Race				Neighborhood Poverty Level			
	Total	White	Black	Asian	P-value (Race)	Low-Poverty ≤5.0%	Medium-Poverty 5.1-15.0%	High- Poverty ≥15.1%	P-value (Poverty)
	N=921 (100%)	N=780 (85.5%)	N=96 (10.4%)	N=37 (4.0%)		N=170 (18.7%)	N=535 (58.8%)	N=205 (22.5%)	
Demographics									
Age at diagnosis, mean, (SD), range	61.18 (12.6), 14-96	61.33 (12.4)	60.48 (13.3)	59.49 (15.1)	.585	62.32 (12.2)	61.14 (12.3)	60.56 (13.2)	.400
Female	290 (31.5)	235 (29.8)	41 (42.7)	13 (35.1)	**.033**	51 (31.3)	157 (29.8)	64 (33.3)	.652
Socioeconomic Status (N = 912)									
Poverty Status									
≤5.0%	170 (18.7)	154 (19.8)	11 (11.7)	5 (13.5)	**<.0001**				
5.1-15.0%	535 (58.8)	478 (61.4)	38 (40.3)	19 (51.4)					
≥ 15.1%	205 (22.5)	147 (18.9)	45 (47.9)	13 (34.1)					
< High School Education									
≤ 6%	252 (27.8)	228 (29.4)	17 (18.1)	7 (18.9)	**.0013**	116 (71.2)	118 (22.5)	8 (4.1)	**<.0001**
6.1-12%	377 (41.6)	330 (42.6)	33 (35.1)	14 (37.8)		44 (27.0)	294 (56.2)	32 (16.4)	
≥ 12.1%	277 (30.6)	217 (28.0)	44 (46.8)	16 (43.2)		3 (1.9)	111 (21.2)	155 (79.5)	
Clinical Factors									
HPV Positive	353 (38.3)	329 (56.0)	21 (32.8)	3 (13.6)	**<.0001**	63 (37.1)	218 (40.7)	68 (33.0)	**.002**
Surgical Treatment	740 (80.3)	647 (82.2)	67 (77.2)	26 (70.3)	**.004**	133 (83.7)	431 (83.0)	134 (69.4)	**.0001**

@ResearchAtJeff

Results

Survival

- **Black race was an independent predictor of mortality (p=.005**) but Asian race (p=.99), poverty (p=.93), and education (p=.27) were not
- Neighborhood poverty level moderates the association of race with mortality
- In low-poverty neighborhoods (<5% below poverty line), **Black patients had 6.4-fold greater hazard of mortality than White patients**

Surgical Treatment

- Black patients were **65% less likely to receive surgical treatment** than White patients when controlling for other factors
- No evidence of an association between neighborhood poverty or education levels with surgery

Conclusions and Implications

Conclusions

- Black patients were less likely to receive surgical treatment and experienced increased mortality relative to White patients
- SES was not an independent predictor of mortality or receipt of surgical treatment
- SES moderated the association of race with mortality

Implications

- Future research should include larger samples of minorities, individual level SES
- Patient, provider, and systemic factors may all play role in racial disparities[9]
- More research is needed to fully understand the relationships between SES, race, and HNC mortality and to improve health equity

References & Additional Tables