Racial Disparities in Rates of Gleason Grade Reclassification in a Multi-Institutional Prostate Cancer Active Surveillance Cohort: A Pennsylvania Urology Regional Collaborative (PURC) Analysis

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ABSTRACT

Introduction and Objective:

Active surveillance (AS) is an established management option for patients with low-risk prostate cancer (CaP), with favorable long-term oncologic outcomes. Previous literature has shown significant racial CaP disparities with African-American (AA) men having a higher incidence of disease and more aggressive tumors. The purpose of this study is to analyze a prospectively maintained multi-institutional AS database to compare Gleason grade reclassification rates on confirmatory biopsy stratified by race.

Methods:

The Pennsylvania Urological Regional Collaborative (PURC) is a prospectively maintained CaP quality improvement collaborative. The PURC database was queried for low risk CaP men on AS divided by race (AA vs Caucasian/Other). The primary outcome of interest was the rate of Gleason grade reclassification at the time of confirmatory biopsy.

Results:

The study cohort included 536 patients with low risk CaP on AS, comprised of 119 (22.2%) AA and 417 (77.8%) Caucasian/Other men. Other than BMI, there were no significant differences in either patient demographics or index biopsy parameters between groups (Table 1). AA men had a significantly higher rate of grade reclassification (35.3% vs 25.4%, p=0.034). On multivariate analysis, AA race was an independent predictor of grade reclassification (OR 1.82, p=0.042) (Table 2).

Conclusions:

Established AS selection criteria and surveillance protocols fail to account for potential racial disparities in oncologic outcomes among patients with CaP. AA men in PURC exhibited a higher rate of grade reclassification on confirmatory biopsy, suggesting that AA men may need alternate AS surveillance criteria potentially including adjunct studies (mpMRI, genomic studies) to accurately risk stratify their CaP.

Table 1: Baseline Characteristics and Oncologic Outcomes of Low-Risk CaP Patients on AS

	African American (n= 119, 22.2%)	Caucasian/Other (n=417, 77.8%)	p-value
Age (n):			
49 or under	2 (1.68%)	6 (1.44%)	
50 to 59	28 (23.5%)	57 (13.7%)	
60 to 69	61 (51.3%)	218 (52.3%)	0.08
70 to 79	27 (22.7%)	129 (30.9%)	
80 or over	1 (0.84%)	7 (1.68%)	
PSA (median)	4.2 (3.0-5.6)	4.3 (3.2-5.6)	0.35
PSA Density (median)	0.10 (0.06-0.14)	0.10 (0.06-0.15)	0.59
BMI (median)	29.6 (26.7-33.8)	28.2 (25.5-31.4)	**0.005**
Gland volume (median cc)	40 (30-57)	42 (32-56)	0.48
Number Positive Biopsy Cores (median)	2 (1-3)	1.5 (1-3)	0.08
Greatest % Cancer per Core (median)	10 (5-26)	10 (5-29)	0.14
PNI (n):			
Yes	10 (13.7%)	18 (7.0%)	0.07
No	63 (86.3%)	239 (93.0%)	
MRI fusion biopsy (n):	35 (29.4%)	111 (26.6%)	0.55
Time to biopsy (median years)	0.9 (0.6-1.1)	0.9 (0.6-1.1)	0.81
Grade Reclassification(n)	42 (35.3%)	106 (25.4%)	**0.034**

Table 2: Univariable and Multivariate Analysis of Factors Associated with Grade Reclassification

	Univariable		Multivariate	
	OR (95% CI)	p-value	OR (95% CI)	p-value
AA Race (referent: Caucasian or other)	1.60 (1.01-2.52)	**0.034**	1.82 (1.01-3.25)	**0.046**
Age	1.26 (0.97-1.63)	0.08		
BMI	1.01 (0.98-1.04)	0.51		
PSA	1.06 (0.96-1.17)	0.22		
PSA density	17.0 (0.80-365)	0.07		
Gland Volume	0.98 (0.97-0.99)	**0.006**	0.98 (0.97-0.99)	**0.015**
Number Positive Biopsy Cores	1.19 (1.08-1.32)	**0.001**	1.21 (1.03-1.41)	**0.018**
Greatest % Cancer per Core	1.01 (1.00-1.02)	**0.003**	1.01 (0.99-1.03)	0.15
MRI fusion biopsy (yes)	2.61 (1.74-3.92)	**0.0001**	2.79 (1.55-5.01)	**0.001**
PNI (yes)	0.64 (0.29-1.43)	0.28		
Time to Biopsy	0.83 (0.49-1.39)	0.47		