



Disparities in the Diagnosis and Management of Metastatic Prostate Cancer in Young Men

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Introduction

Given the clinical heterogeneity of prostate cancer, management strategies are increasingly tailored to disease characteristics. Utilization of these treatments can vary based on demographic factors, treatment at an academic center, healthcare access, and socioeconomic status.

Less is known regarding younger men who are diagnosed with metastatic PCa, in whom disease trajectory and outcome may be distinct from older men.

Objective

To identify sociodemographic factors associated with the diagnosis and treatment of metastatic prostate cancer (PCa) in young men

Methods

The National Cancer Database (NCDB) captures approximately 70% of newly diagnosed cancers in the United States. We queried the National Cancer Database to identify patients with prostate cancer diagnosed in 2004-2014. Patients were stratified by age ≤ 55 and clinic-demographic factors were collected and correlated with the diagnosis of metastatic (M1 or N1) disease.

Descriptive statistics were used to compare characteristics across strata, including initial treatment and utilization of palliative care services. Multivariable logistic regression models and Cox fit proportional model were used to assess factors associated with metastatic vs. localized disease at presentation and treatment received using JMP Pro 13.

Table 1: Disparities in presentation of metastatic PCa at diagnosis by age

	≤55 years OR [CI 95%]	>55 years OR [CI 95%]
Race	-	P<0.05
African American vs. White	-	1.06 [1.02-1.09]
Median Income	-	P<0.05
\$46,000+ vs \$35-45,999	-	0.93 [0.90-0.96]
Facility Type	P<0.05	P<0.05
Academic vs. Community	0.72 [0.67-0.77]	0.75 [0.74-0.77]
Insurance	P<0.05	P<0.05
Uninsured vs Private	1.99 [1.79-2.22]	1.68 [1.58-1.79]
Government vs Private	1.90 [1.74-2.07]	1.89 [1.84-1.94]
% Not High School educated	-	-
Comorbidity (Charlson-Deyo)	P<0.05	P<0.05
2 vs 0	1.71 [1.43-2.04]	2.16 [2.08-2.25]
Distance from facility	P<0.05	P<0.05
	0.010[0.001-0.084]	0.004 [0.002-0.008]
Region (not shown)	P<0.05	P<0.05
Urban/Rural	-	P<0.05
Urban vs metro	-	0.91 [0.88-0.94]

("-" denotes non-significant Odds Ratio)

Table 2: Disparities in management of metastatic PCa by age

	Non-palliative Chemotherapy OR [CI 95%]		Palliative Therapy OR [CI 95%]	
	≤55 years	>55 years	≤55 years	>55 years
Race	P<0.05	P<0.05	-	-
African American vs. White	0.67 [0.55-0.81]	0.83 [0.75-0.92]	-	-
Asian vs. White	-	-	-	-
Median Income	-	-	-	P<0.05
<\$30,000 vs. >\$46,000	-	-	-	1.37 [1.23-1.51]
Facility type	-	P<0.05	P<0.05	P<0.05
Academic vs. Community	-	1.20 [1.11-1.28]	0.75 [0.64-0.87]	0.82 [0.78-0.86]
Insurance	-	P<0.05	P<0.05	P<0.05
Government vs. Private	-	0.77 [0.72-0.84]	1.84 [1.55-2.20]	1.40 [1.31-1.48]
Uninsured vs. Private	-	0.85 [0.70-1.02]	2.21 [1.79-2.74]	1.68 [1.48-1.91]
% Not High School Educated	-	-	-	P<0.05
<14% vs ≥29%	-	-	-	1.27 [1.15-1.42]
Comorbidity (Charlson-Deyo)	-	P<0.05	-	P<0.05
2 vs. 0	-	0.65 [0.55-0.77]	-	1.43 [1.31-1.56]
Distance from facility	0.04 [1.7e-4 ,0.74]	0.26 [0.07-0.97]	5.83e-4 [2.70e-6, 0.13]	3.5e-3 [6.21e-4, 0.02]
Region (not shown)	P<0.05	P<0.05	P<0.05	P<0.05
Urban/Rural	-	-	-	-

Results

We identified 186,578 men ≤55 years diagnosed with prostate cancer. Of those, 9,888 were identified with metastatic disease at presentation.

Metastatic disease at presentation (Table 1)

- For men ≤55, metastatic disease at diagnosis was associated with lack of insurance (OR 4.58 95% CI 4.23-4.96), greater distance from facility (2.04 [1.18-3.51]), higher degree of comorbidity (1.66 [1.44-1.91]), treatment in academic setting (1.20 [1.15-1.26]), and lower local education level (1.20 [1.09-1.31]).

Receipt of Treatment (Table 2)

- Caucasian race (1.49 [95% CI 1.23-1.81]) and shorter distance to facility (0.04 [0.002-0.74]) were significantly associated with receipt of multi-agent chemotherapy for young men.
- Receipt of referral to palliative care in young men was associated with lack of insurance (OR 2.21 [95% CI 1.79-2.74]) or government insurance (1.84 [1.55-2.20]) compared to private, and treatment in community setting (1.34 [1.16-1.55])

Conclusions

Among younger men with metastatic prostate cancer, race and distance from treatment facility were significantly associated with chemotherapy. Academic facility and government insurance or lack of insurance were associated with receipt of palliative care.

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