Increased Resource Utilization in Men with Metastatic Prostate Cancer Does Not Result in Improved Survival or Quality of Life

Ron Golan*[1], Adrien N. Bernstein[1], Xiangmei Gu[2], Brian Dinerman[1], Art Sedrakyan[2], Jim C. Hu[1]

Weill Cornell Medicine, Departments of [1]Urology and [2]Healthcare Policy and Research, New York, NY

MP86-09

INTRODUCTION

- Outside of clinical trials, there exists little standardization in the monitoring of disease progression in men with metastatic prostate cancer (mPCa).
- Common studies for evaluating progression include serum PSA testing, cross-sectional imaging with CT, MRI, or PET, and bone scans.
- Treatment courses may be guided by improvement or worsening of serum PSA testing and / or imaging findings.

OBJECTIVE

- **To investigate the patterns, outcomes, and costs associated with monitoring for disease progression in men with mPCa.**

METHODS

- Using Surveillance, Epidemiology, and End Results (SEER)-Medicare data from 2004 to 2012, we identified 3,026 men diagnosed with mPCa with at least six months of follow-up.
- **Extreme users were classified as those who had either received PSA testing greater than once per month, or received cross-sectional imaging or bone scan more frequently than every two months over a six-month period.**
- Multivariable logistic regression was used to examine patient and provider factors associated with resource utilization. Association of extreme utilization with survival outcomes, costs, and quality of care at end of life (EOL), as measured by timing of hospice referral, frequency of ER visits, length of stay, ICU or hospital admissions, were examined.

The current study used the linked Surveillance, Epidemiology, and End Results (SEER)-Medicare database. The interpretation and reporting of these data are the sole responsibility of the authors.

RESULTS

- 791 men (26%) were defined as extreme users.
- Median follow-up for the extreme users was 2.4 years (IQR 1.3-4.0 years) and 2.6 years for non-extreme users (IQR 1.5-4.2 years).
- Extreme users were more commonly young, White/non-Hispanic, married, higher earning, and more educated (p<0.001, respectively). Extreme users were more likely to visit their oncologist and urologist more frequently (p<0.001).
- In multivariable analysis, younger age at diagnosis, more frequent oncologist or urologist office visits, and receipt of chemotherapy were associated with extreme utilization (p<0.01).
- Receipt of ADT was protective against extreme use (p=0.006).

TABLE 1: Quality of care at end of life

	Non-extreme users n=2,235	Extreme users n=791	p value
Deaths	1538 (68.8%)	581 (73.5%)	
>1 hospital admission	257 (16.7)	117(20.1)	0.07
>1 ED visit	242 (15.7)	106 (18.2)	0.16
ICU within 1 month of death	349 (22.7)	152 (26.2)	0.09
LOS ≥ 14 days	189 (12.3)	80 (13.8)	0.36
Hospice within 7d of death	51 (3.3)	26 (4.5)	0.20
Hospice within 30d of death	197 (12.8)	87 (15.0)	0.19
Hospice within 6mo of death	312 (20.3)	125 (21.5)	0.53

TABLE 2: Association between resource utilization and survival

	Non-extreme users (n=2,235)	Extreme users (n=791)	p value
Overall mortality			
Deaths (N)	1675	650	<0.001
Person- years follow up	6583.4	2425.2	
Unadjusted deaths per 100 person-years	25.44	26.80	0.20
Adjusted deaths per 100 person-years	27.05	29.22	0.19
Prostate cancer-specific mortality			
Deaths (N)	1022	415	0.001
Person- years follow up	5236.5	2026.7	
Unadjusted deaths per 100 person-years	19.52	20.48	0.37
Adjusted deaths per 100 person-years	21.90	21.71	0.92

TABLE 3: Costs associated with extreme testing

	Non-extreme users	Extreme users[1]	Percent difference between extreme and non-extreme users
First year after diagnosis*	n=1,909 Mean $27,983 (SD $36,101)	716 $35,454 (45,117)	Unadjusted 22.7% (9.9 - 35.6%) Adjusted 22.9% (10.2 - 35.6%)
Last year of life*	n=1,445 $41,419 (42,615)	567 $62,672 (52,634)	Unadjusted 59.0% (44.8 - 73.3%) Adjusted 35.1% (20.2 - 50%)
Costs per month*	n=2,235 $2,958 (3,291)	791 $4,220 (4,074)	Unadjusted 50.4% (41.4 - 59.5%) Adjusted 36.4% (27.4 - 45.3%)
Costs per year*	$35,493 (39,487)	$50,643 (48,883)	

*p<0.05

CONCLUSIONS

Increased monitoring among men with mPCa significantly increases healthcare costs, without definitive improvement in survival nor quality of care at EOL. Monitoring for disease progression outside of clinical trials should be reserved for when findings will alter management.