The Prevalence and Utility of MRI in Active Surveillance of Low-Risk Prostate Cancer

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INTRODUCTION

- Prostate cancer is the most common non-skin cancer in American men and the second leading cause of cancer death, but is low risk and typically has an indolent course
- Low-risk prostate cancer (LRPC) is defined as small, low-grade, localized cancer with PSA <10, Gleason score ≤6, clinical stage <T2c
- Active surveillance (AS) is currently the preferred initial treatment option for patients with LRPC until signs of cancer progression
- Magnetic Resonance Imaging (MRI) has become an increasingly used tool for enrolling patients in AS, as well as a monitoring tool for patients already under AS
- The precise role of MRI in AS and its implementation in the AS protocol is still under investigation

OBJECTIVES

- We aim to identify how physicians are utilizing MRI in the care of patients undergoing AS for LRPC

METHODS

- Population-based survey study of patients from metro-Detroit
- Male patients (n=204) with newly diagnosed LRPC identified through cancer registries (SEER)
- Patients surveyed at baseline (<4 months after diagnosis) and at 2-year and 5-year follow-up intervals as part of the Treatment Options for Prostate Cancer Study (TOPCS)
- Through medical record review, determine whether MRI was ordered, number or MRI, and the reason for ordering an MRI

RESULTS

- Among the 204 patients, 93 patients (45%) had a least one MRI during 2-year or 5-year follow-up, and 61 (38%) had ≥ two MRIs
- The most common reason for 1st MRI was "in place of prostate biopsy" (n=28, 30%) and for ≥2 MRI was for guidance of "fusion biopsy" (n=26, 42%).
- The average length of time between the date of diagnosis and the 1st MRI was 1.21 years (SD=1.18, range=12 days-5.5 years)
- For the category of "other", reasons include the following: evaluation for high grade lesion, determine eligibility for active surveillance, used for curative therapy planning, per the request of the patient, etc.

RESULTS (cont.)

Table 1. Sample demographic characteristics by MRI (N=204)

Variable	MRI (N=93) (45.6%)	No MRI (N=109) (53.4%)	P-value
Age			0.955
≤64	56 (60.2%)	66 (60.6%)	
65+ years	37 (39.8%)	43 (39.4%)	
Race			0.762
Caucasian	84 (90.3%)	101 (92.7%)	
Black	9 (9.7%)	8 (7.3%)	
Education			**0.028***
≤ High School	4 (4.3%)	12 (11.0%)	
Some College	34 (36.6%)	40 (36.7%)	
College Graduate or ≥ Graduate	55 (59.2%)	57 (54.1%)	
Insurance			0.441
Private	69 (74.2%)	73 (67.0%)	
Not Private or No Insurance	24 (25.8%)	36 (33.0%)	
Comorbidities			0.451
0	45 (48.4%)	44 (40.4%)	
1	31 (33.3%)	37 (33.9%)	
2+	17 (18.3%)	28 (25.7%)	

Table 2. Reason for obtaining an MRI for LRPC by category

Reason for MRI	1st MRI (N=93)	≥ 2 MRI (N=61)
Increase in PSA	23 (24.7%)	14 (23.0%)
In place of prostate biopsy	28 (30.1%)	9 (14.8%)
Fusion biopsy	3 (3.2%)	26 (42.6%)
Other	22 (23.7%)	8 (13.1%)
Unknown	17 (18.3%)	4 (6.6%)

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RESULTS (cont.)

Table 3. Treatment characteristics for LRPC by MRI (N=204)

Variable	MRI (N=93) (45.6%)	No MRI (N=109) (53.4%)	P-value
Baseline PSA Value			0.140
Mean ± SD	4.92 ± 1.751	5.34 ± 2.169	
Total PSA Tests			0.372
Mean ± SD	4.41 ± 2.220	4.14 ± 2.044	
Total Biopsies			**0.030***
0	23 (24.7%)	28 (25.9%)	
1	52 (55.9%)	76 (70.4%)	
2 or more	18 (19.4%)	4 (3.7%)	
Genetic Testing			**<0.001***
Yes	38 (40.9%)	25 (22.9%)	
No	54 (58.1%)	84 (77.1%)	
Currently on AS?			**0.003***
Yes	67 (74.4%)	85 (80.2%)	
No	23 (25.6%)	21 (19.8%)	
Total Office Visits			0.107
Mean ± SD	5.40 ± 3.789	4.64 ± 2.725	

DISCUSSION

- Almost half of patients who are undergoing AS had at least one MRI during the 2-year or 5-year follow-up period
- Most MRIs were used in the place of a prostate biopsy or guidance for a fusion biopsy, however there are a variety of reasons why MRIs are utilized in AS patients
- Among patients who had at least one MRI, they were also more likely to have genetic testing and less likely to remain on AS
- Study limitations: relatively small sample size; the findings from metro-Detroit may not represent practice patterns from other geographical locations

PUBLIC HEALTH IMPLICATIONS

- Use of MRI in patients undergoing AS increasing, but further investigation is needed to determine whether MRI can be safely used in place of repeated prostate biopsy during AS
- Improved documentation regarding the reasoning for ordering an MRI would help to further elucidate how physicians are utilizing MRI in the care of patients undergoing AS for LRPC