#18-4675

A 17-Gene Assay Drives High Active Surveillance Management in Clinically Low-Risk Prostate Cancer: 1 Year Results from a 1,200 Patient Prospective Observational Trial

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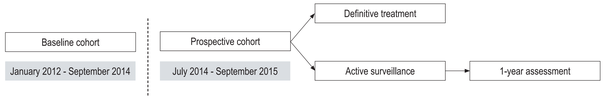
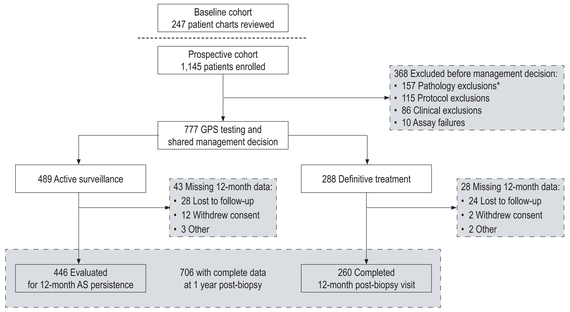
BACKGROUND

- The 17-gene Oncotype DX Genomic Prostate Score® (GPS™) assay is a biopsy-based gene expression assay validated in clinically low- to intermediate-risk prostate cancer for:
  - Adverse pathology (AP; high grade and/or pT3), an early and actionable endpoint (1,2).
  - Distant metastasis and prostate cancer-specific death (3).
- 5 independent studies of GPS-tested men (N>900) consistently show higher active surveillance use after GPS testing:
  - Up to 30% increase in low-risk men and 15% increase in intermediate-risk men[4-8].

Study Design



Patient Population



*included incorrect tissue type, insufficient tumor (<1 mm), other (unacceptable Gleason score).

METHODS

- 2 cohorts of patients were analyzed:
  - Men with clinically low- to intermediate-risk prostate cancer were prospectively enrolled in a study of the 17-gene tissue-based RT-PCR GPS assay at 26 sites in the US.
  - A retrospective chart review was completed to determine patterns of clinical management before the GPS test was available at 9 of the sites from the prospective cohort.
- Participants were eligible for the prospective study if they had biopsy Gleason score (GS) ≤ 6 with any number of cores positive, or biopsy with low volume (≤ 3 positive cores or ≤ 33% positive cores) GS 3+4 disease. Low-intermediate risk was defined as low-volume intermediate risk (GS 3+4).
- In the prospective study, a clinical management assessment was completed prior to GPS testing.
- Participants underwent GPS testing within 4 months of diagnosis. A shared management decision between AS or treatment was then recorded after participants received information about management options per practice standards, decision aids, and a GPS-based individual estimation of risk.
- An assessment of AS persistence, defined as being free of definitive treatment, was completed one year after the diagnostic biopsy.

OBJECTIVE

- To determine the effect of the Oncotype DX Genomic Prostate Score® (GPS™) assay on clinical management and active surveillance (AS) persistence one year after diagnosis in a multi-center, prospective, observational study of community practices.

RESULTS

Demographics

Variable	Prospective GPS-Tested Cohort (N=777)*	
	Active Surveillance (N=489)	Definitive Treatment (N=288)
Age, years		
Median (IQR)	65 (60-69)	64 (60-69)
Range	50-86	50-83
< 65	228 (47%)	145 (50%)
≥ 65	261 (53%)	143 (50%)
Ethnicity		
Hispanic or Latino	20 (4%)	14 (5%)
Not Hispanic or Latino	468 (96%)	274 (95%)
Race		
White	430 (88%)	251 (88%)
American Indian or Alaska Native	1 (<1%)	2 (1%)
Asian	5 (1%)	3 (1%)
Black or African American	51 (11%)	31 (11%)

*Percentages were calculated by column.

- Age, ethnicity, and race were similar between AS and treated patients.
- The baseline chart pull cohort had similar demographics: 57% < 65 years, 2% Hispanic/Latino, 15% African American, and 78% white.

Clinical Characteristics

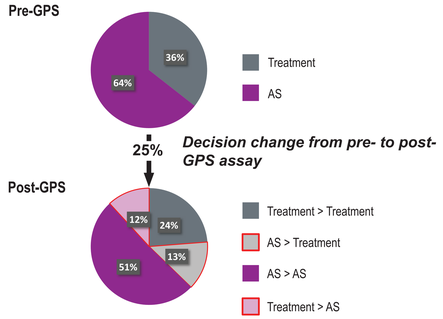
Variable	Prospective GPS-Tested Cohort (n=777)*	
	Active Surveillance (N=489)	Definitive Treatment (N=288)
Risk Group		
NCCN Very Low	157 (86%)	26 (14%)
NCCN Low	266 (74%)	94 (26%)
Low-Intermediate	66 (28%)	168 (72%)
Biopsy Gleason Score		
3+3	448 (75%)	148 (25%)
3+4	41 (23%)	140 (77%)
PSA (ng/ml)		
Mean (SD)	5.8 (2.6)	6.6 (3.4)
0 to < 4	91 (65%)	49 (35%)
4 to < 10	367 (66%)	193 (35%)
10 to 20	31 (40%)	46 (60%)
Clinical T-Stage		
T1c	428 (65%)	229 (35%)
T2a	56 (53%)	50 (47%)
T2b	3 (33%)	6 (68%)
T2c	2 (40%)	3 (60%)
GPS Result		
Mean (SD)	23.5 (10.6)	31.2 (12.8)
Median (IQR)	22 (16 – 29)	30 (22 – 40)
Predicted Adverse Pathology (%)		
Mean (SD)	23.5 (9.6)	37.3 (13.2)
Median (IQR)	22 (16 – 28)	38 (26 – 48)

*Percentages were calculated by row.

- There was a higher proportion of biopsy GS 3+4 in the treated group.
- At diagnosis, treated patients had higher overall clinical risk, GPS results, PSA levels, clinical T-stage, and predicted risk of adverse pathology.
- The baseline cohort had similar clinical charcteristics: 25% GS 3+4, 74% PSA 4-10, 8% PSA 10-20, 13% clinical stage T2, 36% NCCN low risk, and 32% NCCN intermediate risk.

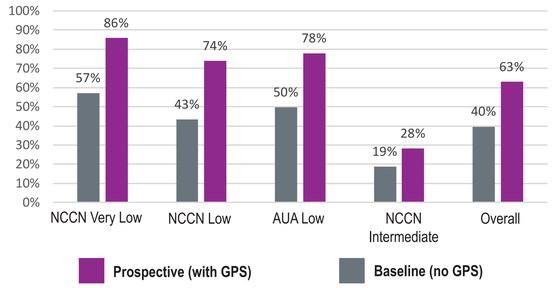
RESULTS

Clinical Management Changed after GPS Testing for 1 in 4 Men



- Overall, the management decision changed after GPS testing for 25% (195/770) of men.
- In the NCCN low-risk group, the management decision changed for 28% (99/357) of men after testing.
  - 52% of patients (56/107) initially recommended definitive treatment went on AS after GPS testing.
- Overall, 63% of patients went on AS after GPS testing.

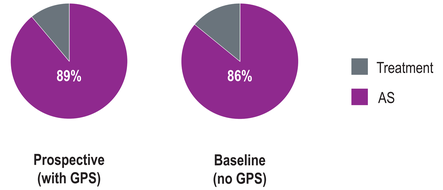
AS Rates Were Higher With GPS Testing



- Overall, 23% more GPS-tested patients chose AS compared to an untested baseline (no GPS) group from a subset of the same practices.
  - Baseline (no GPS) AS rates were similar to the CaPSURE registry (40% for CAPRA 0-2 in 2010-2013)[9] and the MUSIC registry (49% for AUA low risk in 2012-2013)[10].

RESULTS

High AS Persistence at 1 Year With GPS Testing



- At one-year post-diagnosis, 89% (395/446; CI 85%-91%) of the prospective cohort remained on AS.
- In the baseline cohort, 86% (84/98; 95% CI 77% - 93%) remained on AS.

CONCLUSIONS

- Incorporation of GPS testing provides individualized risk assessment and changes initial disease management for one in four men.
- Among NCCN low-risk men, half of patients who were initially recommended definitive treatment chose AS after GPS testing.
- Compared to a baseline (no GPS) group, more GPS-tested men went on AS and persistence at 1 year was high.

ACKNOWLEDGEMENTS AND DISCLOSURES

Oncotype DX Genomic Prostate Score and GPS are trademarks or registered trademarks of Genomic Health, Inc.
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