PI-RADS Categories on initial prostate MRI are associated with Active Surveillance progression in patients with Prostate Cancer

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Background

- Active Surveillance (AS) is now a popular and well-accepted alternative to definitive therapy in patients with low-favorable intermediate risk prostate cancer (CaP).
- Prostate Imaging Reporting & Data System (PI-RADS) scores are assigned to assess risk of clinically significant prostate cancer (csCaP).
- In this study, we investigate if PI-RADS scores are associated with AS progression for patients.

Methods

- Patients were enrolled in a prospectively designed, nationally registered, clinical trial assessing cancer detection for MRI targeted biopsies.
- All patients who were referred to the National Institutes of Health (NIH) and evaluated for active surveillance from 11/2003 to 5/2017 were included in the analysis.
- There were no strict exclusion criteria with regards to PSA, PSA density (PSAD), or tumor volume estimated by MRI or biopsy results. Only patients with at least 2 biopsies were included in order to observe GG or volume changes that may have led to AS progression. Repeat FB was encouraged to be performed on a 1-2-year interval depending on changes in imaging, PSA, or clinical status.
- Univariate analysis was performed to compare the rates of AS progression between different PI-RADS categories. Student t-test and the chi-square test were used for continuous and categorical variables, respectively. Cox proportions hazard regression analysis was performed on all baseline clinical and MRI data.

Results

- A total of 1052 potential AS candidates were referred to our institution with a diagnosis of either GG 1 PCa, GG 2 PCa, or were biopsy naïve.
- 491 men remained on AS and received at least 2 MRIs and at least 2 biopsies. 109 patients received MRIs before the PI-RADS score was available; the remaining cohort of 382 patients were used in our analysis.
- For those patients that didn’t progress off AS, the median duration of follow-up on AS was 56 months (IQR 32-61 months). The median amount of time until progression was 39 months (IQR 26-46 months).
- 131/378 (35%) patients in our cohort eventually progressed off AS.

PI-RADS category 4 lesions or higher on initial mpMRI can be used to predict progression of csCaP with patients on AS. Patients with PI-RADS 4 lesions should be considered high risk in any AS protocol whereas patients with PI-RADS 3 lesions or lower can likely safely continue AS.

Conclusion

PI-RADS category 4 lesions or higher on initial mpMRI can be used to predict progression of csCaP with patients on AS. Patients with PI-RADS 4 lesions should be considered high risk in any AS protocol whereas patients with PI-RADS 3 lesions or lower can likely safely continue AS.