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The Influence of Magnetic Resonance Imaging, Genomic Classifiers, and Post-Magnetic Resonance Imaging Biopsy Results on Shared-Decision Making in Newly Diagnosed Favorable Risk Prostate Cancer Patients

Michael Wang, Detroit, MI, Ji Qi, Arvin George, James Montie, Ann Arbor, MI, Michael Cher, Detroit, MI, Kevin Ginsburg, Philadelphia, PA, for the Michigan Urological Surgery Improvement Collaborative, Ann Arbor, MI*

INTRODUCTION AND OBJECTIVE: Magnetic resonance imaging (MRI), genomic classifiers (GC), and post-MRI biopsy (pMRI-Bx) have become increasingly integrated into the shared-decision making process for men with newly diagnosed prostate cancer deciding between definitive treatment and active surveillance (AS). We aimed to assess how these tests and combination of the results influenced initial management decisions.

METHODS: We reviewed the Michigan Urological Surgery Improvement Collaborative registry for men with newly diagnosed favorable risk prostate cancer (FPRC: grade group (GG) 1 or low volume GG 2) from 06/2016 to 12/2019. All men included in this study obtained an MRI, with or without GC or pMRI-Bx. The primary outcome was the proportion of patients who selected AS and remained free of treatment within 1 year of diagnosis. MRI, GC, pMRI Bx results were classified as reassuring (RA) vs non-RA according to predefined and previously published MUSIC criteria. Proportions were compared between groups using the Fisher's exact test.

RESULTS: Of the 1,394 men with FRPC who met inclusion criteria, 914 had an MRI alone, 140 had an MRI and GC, 295 had MRI and pMRI-Bx, and 45 had MRI, GC, and pMRI-Bx. Compared with men with RA MRI alone, more men with RA MRI/RA pMRI-Bx chose AS (95% vs. 84%, $p=0.006$) and fewer men with RA MRI/non-RA pMRI-Bx chose AS (35% vs. 84%, $p<0.001$, Figure 1). A similar proportion of men with RA MRI/RA GC and RA MRI/non-RA GC chose AS as men with RA-MRI alone (85% vs. 84, $p=1.00$ and 84% vs 84%, $p=1.00$, respectively). Compared with men with non-RA MRI alone, more men with non-RA MRI/RA pMRI-Bx chose AS (89% vs. 58%, $p=0.001$) and fewer men with non-RA MRI/non-RA pMRI-Bx chose AS (28% vs. 58%, $p<0.001$). Compared with nonRA MRI alone, a similar proportion of men with non-RA MRI/RA GC chose AS (64% vs. 58%, $p=0.593$) and fewer men with non-RA MRI/non-RA GC chose AS (28% vs. 58%, $p=0.01$).

CONCLUSIONS: Post-MRI biopsy results strongly influenced the decision for treatment vs. AS compared with MRI results alone. In men with both GC and MRI, treatment decisions were mostly aligned with MRI results. These data suggest MRI and pMRI-Bx results are weighed more heavily by patients and providers compared with GC results.

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Figure 1: Proportion of patients on AS at 1 year after diagnosis grouped by the results of MRI, GC, and p-MRI biopsy; Men with RA MRI result (top) and non-RA MRI result (bottom).

