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Confirmatory Testing Outcomes in Active Surveillance: Results from the Michigan Urological Surgery Improvement Collaborative (MUSIC)

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INTRODUCTION AND OBJECTIVE: Confirmatory testing is recommended during the consideration phase for active surveillance (AS) of favorable-risk prostate cancer (PCa) within the first 6 months of diagnostic biopsy. Recommended confirmatory tests include repeat prostate biopsy, multiparametric magnetic resonance imaging (mpMRI), and/or genomic testing. We aimed to describe how confirmatory testing is utilized within the state of Michigan and how the results are associated with disease pathology and treatment decisions among patients on AS.

METHODS: Between 2012 and 2020, patients diagnosed with favorable-risk PCa (all Gleason Grade [GG] 1, GG2 with ≤3 positive cores and ≤50% core involvement) were captured in the MUSIC registry. The annual rates of confirmatory testing across the state of Michigan were tracked, and patient factors associated with the use of confirmatory testing were assessed. Kaplan-Meier curves and log-rank tests were used to describe associations between confirmatory testing results and our primary endpoints - 1) time to early disease reclassification and 2) time to definitive treatment.

RESULTS: Rates of AS among eligible men increased from 42% in 2012 to 76% in 2020. Rates of confirmatory testing increased from 7.9% to 63% over the same time period. Bivariate analysis demonstrated that men with GG2 at diagnosis who are <70 years old ($p<0.05$) and have a PSA <10 ng/mL ($p<0.05$) were more likely to undergo confirmatory testing. Genomic testing was the most commonly utilized confirmatory test for both GG1 and GG2 disease at rates of 53% and 74%, respectively, compared to mpMRI at rates of 42% and 24% and repeat biopsy at rates of 5.5% and 1.6%. Men who had a reassuring mpMRI (PI-RADS 1-3) were significantly less likely to have disease reclassification than those with PI-RADS 4-5 lesions (24-month reclassification-free probability 79% vs. 51%, $p<0.001$). No significant association was observed between the results of genomic testing (71% vs. 63%, $p=0.31$) and time to disease reclassification. Both reassuring mpMRI (24-month treatment probability 9% vs. 23%, $p<0.001$) and genomic testing (21% vs. 29%, $p=0.001$) were associated with lower rates of transition to definitive treatment compared to non-reassuring tests.

CONCLUSIONS: Use of confirmatory testing has increased between 2012 and 2020, and genomic testing has been utilized most commonly during this timeframe. However, mpMRI appears to outperform genomic testing in predicting both early disease reclassification and definitive treatment.

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