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LOW SUSPICION LESIONS ON MULTIPARAMETRIC MRI: WHEN SHOULD THESE LESIONS BE BIOPSIED?

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Introduction: Multiparametric prostate MRI (mpMRI) allows for risk stratification of suspicious lesions based on their imaging characteristics and predicts likelihood of clinically significant prostate cancer (CS CaP, Gleason 7 or higher). Low suspicion lesions which are analogous to Prostate Imaging Reporting and Data System (PI-RADSv2) 1 and 2 lesions have been reported less likely to have clinically significant disease. However, the risk of CS CaP is not zero. The aim of our study was to determine the rate of clinically significant cancer in low suspicion/PI-RADS 1 and 2 lesions and to determine when these lesions should be biopsied.

Methods: A review was performed of a prospectively maintained database of patients undergoing mpMRI followed by fusion-guided (FBx) and 12-core systematic (SBx) in the same session from 2007-2015. Patients with low suspicion on NIH suspicion score or PI-RADS 1 and 2 lesions were identified. Patient demographic, imaging, and histopathologic data were collected. Chi-square and Mann-Whitney U tests were conducted to determine association of patient, MRI, and biopsy pathology characteristics with presence of CS CaP.

Results: Out of 1260 patients, we identified 417 low suspicion lesions in 309 patients. Mean age and PSA were 60.7 (±7.4) years and 8.1 (±12.0)ng/dL. 51 (12.2%) lesions in 48 patients were found to have prostate cancer on fusion biopsy. Only 13 (3.1%) lesions had clinically significant disease (all Gleason 7) detected. There was no difference in mean age or PSA between patients with or without CS CaP in low suspicion lesions. Patients with CS CaP in low suspicion lesions had lower mean prostate volume (43.1 vs 59.5, p=0.031) and higher mean PSA density (0.23 vs 0.16, p=0.002). In only 4 (1.3%) patients, clinical significant disease was diagnosed solely by biopsy of low suspicion lesions. In absence of moderate or high suspicion (PI-RADS 3-5) lesions, 77 patients with low suspicion lesions will have to undergo FBx for detection of 1 clinically significant prostate cancer.

Conclusion: Low suspicion/ PI-RADS 1 and 2 lesions on mpMRI have very low likelihood of having clinically significant disease. Considering that less than 1.5% of patients would have any change in risk stratification based on biopsy of these lesions, these lesions should not be targeted with fusion biopsy to decrease costs and complications of FBx.