

## Comparing the diagnostic accuracy of PI-RADS Version 1 and PI-RADS Version 2 using a radiologic-pathologic correlation

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**Introduction:** Multiparametric MRI (mpMRI) has been developed as an adjuvant tool for prostate cancer screening. MpMRI according to PI-RADSV1 criteria improved detection of prostate cancer, but studies evaluating PI-RADSV2 are lacking. Utilizing radiologic pathologic correlation through a combination of TRUS guided 12-core and MRI/TRUS fusion biopsies; we compared the diagnostic accuracy of mpMRI according to PI-RADSV1 versus PI-RADSV2.

**Methods:** We retrospectively reviewed charts of patients with mpMRI utilizing PI-RADSV1 and subsequent combination biopsy (TRUS-guided 12-core biopsy plus MRI/TRUS fusion biopsy). The mpMRI studies were then re-graded to PI-RADSV2, by a radiologist blinded to biopsy results. An mpMRI with PI-RADS score of 3-5 was considered positive. Clinically significant cancer was defined as Gleason Score  $\geq 7$  or 6 with  $\geq 50\%$  tumor on core. Chi-square and ROC analyses were performed.

**Results:** Our analysis included 76 men with a total of 124 identified prostate lesions on mpMRI. For clinically significant cancer, PI-RADSV1 had a NPV, PPV, sensitivity, and specificity of 100%, 33.0%, 100%, and 20.2%, respectively. PI-RADSV2 had values of 100%, 41.2%, 100%, and 43.8%, respectively. Chi-square analysis showed a significant association between clinically significant cancer and both PI-RADSV1 score ( $p=0.004$ ) and PI-RADSV2 score ( $p<0.001$ ). On ROC analysis, the AUC was 0.819 and 0.856 for PI-RADSV1 and PI-RADSV2, respectively.

**Discussion:** MpMRI utilizing PI-RADSV2 criteria achieves a higher specificity and PPV. While both PI-RADS scores show statistically significant correlation with clinically significant cancer, the correlation was stronger using PI-RADSV2. Furthermore, there was an AUC increase of 0.037 when using PI-RADSV2 criteria. Compared to PI-RADSV1, PI-RADSV2 appears to have superior diagnostic accuracy for detecting clinically significant prostate cancer.

### Biography

Sara Fardin has completed her Medical School in Tehran University of Medical Sciences and Radiology-Molecular Imaging Research Fellowship in the University of Pennsylvania. She is currently working as a Research Fellow in University of California, Irvine.

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