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PREDICTION OF UNILATERAL PROSTATE CANCER BY THE COMBINATION OF TRANSRECTAL ULTRASONOGRAPHY-GUIDED PROSTATE BIOPSY AND MULTI-PARAMETRIC MAGNETIC RESONANCE IMAGING: A REAL-LIFE EXPERIENCE

Hypothesis / aims of study
Missed prostate cancer in contralateral sides of the prostate is the concern for hemialbation of prostate. To verify the accuracy of the current methodology for staging localized prostate cancer, the combination of multi-parametric magnetic resonance imaging (mp-MRI) with apparent diffusion coefficient (ADC) mapping, transrectal ultrasonography (TRUS)-guided prostate biopsy (PBx) and digital rectal exam (DRE) in evaluating the laterality of prostate cancer referenced by the histological mapping from radical prostatectomy specimens.

Study design, materials and methods
  The 730 quadri mount section RP pathologies that had pre-operative 1) extended (12-core) PBx, 2) mp-MRI with ADC mapping and 3) DRE were screened and 335 men suspected to be unilateral prostate cancer without any suspicious finding from all of pre-operative clinical parameters were included. Based on RP pathology. The predictive performance of combination of these pretreatment clinical parameters to predict the laterality, not only referenced by the absence of malignancy, but also by the absence of significant cancer, unfavorable pathology was evaluated. Pathology was classified to be favorable when showing no Gleason pattern 4/5 or pT3/N1 features: all other cases were regarded as unfavorable cancer. Clinically insignificant cancer was defined as organ-confined disease, no Gleason pattern 4/5, and a cancer volume of < 0.5 mL.

Results

From 730 radical prostate pathologies, the potential focal therapy candidates suspecting unilateral clear lobe from all of PBx, mp-MRI and DRE were 335 cases (45.9%). Among 335 cases, only 46 cases (13.7%) were unilateral cancer. The accuracy predicting the absence of unfavorable pathology and significant cancer were 30.7% (103/335) and 36.1% (121/335), respectively. Even, 30 cases (8.9%) were locally advanced among potential focal therapy candidates. In sub-group analysis of D'Amico low risk prostate cancer patients (n=115), only 26.1% (30/115) were unilateral cancer. The absence rate of unfavorable pathology and significant cancer among low risk group were 47.8%(55/115) and 56.5%(65/115), respectively.

Interpretation of results
The current standard pre-operative staging methodology including extended (12-core) PBx, mp-MRI with ADC mapping and DRE does not provide sufficient information to discriminate unilateral cancer, which is essential to identify proper hemi-ablation candidates.

Concluding message
The current standard pre-operative staging methodology does not provide sufficient information to discriminate unilateral prostate cancer.

Disclosures
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