

P027 ADC map parameters at mpMRI predict unfavorable cribriform pattern in PCa patients

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Introduction & Objectives: Several studies have showed that cribriform (CR) prostate cancer (PCa) is associated with adverse clinical outcomes. Early detection of these tumors could lead to tailored therapies or follow-up protocols. The aim of the study was to assess the role of multiparametric MRI (mpMRI) parameters in early identification of CR PCa.

Materials & Methods: We retrospectively evaluated 163 patients who underwent RARP for clinically significant PCa (csPCa) at single tertiary center. All patients underwent preoperative mpMRI and lesions were scored according to PIRADSV2.1. Pathologic specimens were evaluated by single experienced pathologist. Patients with negative mpMRI (namely, PIRADSV2.1 ≤ 2 , n=28) were excluded. Overall, 135 patients with positive mpMRI (namely, PIRADSV2.1 > 2) were stratified according to presence of consistent CR pattern ($> 50\%$) and absent or minimal CR pattern ($\leq 50\%$) at RARP specimen. Difference between the two groups were evaluated with Mann-Whitney U test and chi-square test to compare medians and proportions, respectively. Multivariate logistic regression was used to identify predictors of CR $> 50\%$ among mpMRI phases and parameters, in patients with positive mpMRI in the peripheral zone (n=111). ROC curve was used to evaluate the area under the curve (AUC) of Apparent Diffusion Coefficient (ADC) in detecting lesions harboring CR $> 50\%$.

Results: Median age was 66 years and median PSA was 6.5 ng/ml. Overall, ISUP grade at final pathology was 2,3,4 and 5 in 78 (48%), 53 (32%), 19 (12%) and 13 (8%) patients, respectively. Considering 135 men with positive mpMRI, 30 (22.2%) and 105 (77.8%) men harbored CR $> 50\%$ and CR $\leq 50\%$ at final pathology. Patients with CR $> 50\%$ had significantly higher index lesion's diameter (14 vs. 13mm, p=0.03) and lower ADC value of both the whole area (0.82 vs 0.94 $\times 10^{-3}$ mm²/sec, p=0.02) and ADC of darkest zone (0.6 vs 0.75 $\times 10^{-3}$ mm²/sec, p=0.03) when compared with patients with CR $\leq 50\%$. All CR $> 50\%$ lesions were located in peripheral zone (100 vs 80%, p=0.03) as referred to lesion with CR $\leq 50\%$. At multivariable logistic regression, ADC value of all area (OR 0.025, p=0.03) and ISUP grade 4-5 (OR 6.3, p=0.004) in patients with peripheral mpMRI lesions were independent predictors of CR $> 50\%$ at definitive pathology. AUC of the ADC of all area was 0.69 (CI 0.56-0.8, p=0.003).

Conclusions: ADC map at mpMRI can be useful to predict the presence of unfavorable CR pattern PCa.