Which is the value of a negative mpMRI in ruling out adverse pathological outcomes at radical prostatectomy?
A retrospective analysis on 212 prostatic lobes

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Introduction

The aim of the current study is to evaluate the diagnostic accuracy to detect csPCa of mpMRI targeted plus saturation sampling compared to saturation sampling alone and the value of a negative mpMRI to rule out adverse pathological outcomes at radical prostatectomy (RP) performing a side-specific analysis of prostatic lobes from RP specimens.

Materials & Methods

We prospectively analyzed 106 men with a PCa diagnosis who underwent radical prostatectomy. PIRADS ≥ 3 lesion targeted sampling was carried out, whereas systematic saturation sampling was performed for each lobe in all cases. 212 prostatic lobes were definitely available for analysis with respect to mpMRI findings. The primary outcome was the detection rate of csPCa at RP for targeted plus saturation sampling compared to saturation sampling alone. As secondary endpoints, the positive predictive value and negative predictive value of mpMRI were calculated with regards to csPCa detection.

Results

A total of 111 lobes had a csPCa, whereas 101 lobes had an ISUP 1. 163 lobes were pT2, 49 had extracapsular extension of PCa. 63.6% (135/212) prostatic lobes had a positive mpMRI and underwent targeted + saturation sampling, whereas the remaining 77 lobes (36.4%) were negative and had only saturation biopsy.

The detection rate of csPCA was 55% (75/135) for mpMRI positive lobes and 46.7% (36/77) for mpMRI negative lobes (p=0.217). A pT3 was evident in 5 lobes with a negative mpMRI (6.4%).

Positive predictive value of mpMRI was 55.5%; negative predictive value to rule out csPCa was 53.2%.

Targeted biopsy of a single mpMRI-positive lobe would have missed 36/111 (32.4%) lobes with csPCa.

Conclusions

In our subgroups of patients with PCa managed with RP, the detection rate of csPCa did not differ significantly between targeted plus saturation and saturation sampling alone.

If a targeted-only approach is performed, the low predictive value of a negative mpMRI may account for an underestimation of tumor burden and extension.

Since surgical tailoring is based on pre-operative assessment of local staging and the dissection relies on the knowledge of the side specific amount of PCa, mpMRI with targeted sampling alone can adversely affect surgical success and oncologic outcome.