P006 Diagnostic performance of micro-ultrasound in patients under active surveillance for low-risk prostate cancer

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Introduction & Objectives: Active surveillance (AS) represents an important alternative to active treatment strategies in patients diagnosed with low-risk prostate cancer (PCa). We investigated the diagnostic performance of micro-ultrasound (microUS), a new high-resolution imaging modality for transrectal ultrasonography (TRUS) and real-time target biopsies, within a contemporary cohort of AS patients.

Materials & Methods: Between October 1st 2017 and April 30th 2019, we prospectively enrolled 68 patients scheduled for reclassification biopsy as part of the PRIAS protocol for AS of low-risk PCa. MicroUS TRUS was performed and PRI-MUS protocol applied to identify suspicious lesions (i.e. PRIMUS score ≥3). All patients were subjected to target biopsies of microUS and any mpMRI lesions (PI-RADSv2≥3) and complemented by systematic biopsies. The proportion of patients who were excluded from AS either due to upgrading (detection of PCa GS ≥7) or upsizing (>2 GS=6 PCa positive cores) at confirmatory biopsies was determined, and the diagnostic performance of microUS evaluated.

Results: Median patient age was 65(IQR 60-71) years, median total PSA was 7.1(IQR 5.1 - 9.5) ng/mL and median prostate volume was 47.7(IQR 39 – 66) mL. Overall, 13 out of 68 patients had a cT2a PCa. MicroUS detected prostate lesions with a PRI-MUS score of 3,4 and 5 in respectively 13, 38 and 9 patients, while in 8 subjects none was identified. PCa detection rate was 66.2%(n=45); 23 patients were upgraded to a Gleason Score ≥7 cancer, while 4 showed more than two GS=3 positive cores, resulting in 27 individuals who were excluded from AS. The proportion of patients excluded from AS showed a statistically significant increase from 12.5% in patients with a negative microUS to 23.1%, 42.1% and 77.8% in patients with a PRIMUS 3,4 and 5 lesion, respectively(p=0.023). The sensitivity, specificity, negative and positive predictive value of microUS in detecting individuals excluded from AS was 96.2%, 20.5%, 87.5% and 43.3%, respectively.

Conclusions: MicroUS may represent a promising new imaging modality in the detection of clinically significant PCa in patients under AS. Adoption of microUS-TRUS during reclassification biopsies may allow for better selection of patients who would benefit from remaining in AS as opposed to undergoing active treatment.