

P008 Real-time micro-ultrasound guiding of systematic prostate biopsies: Preliminary results from a single-institutional experience

EUR Urol Suppl 2019;18(11):e3421

Paciotti M.¹, Maffei D.¹, Lazzeri M.¹, Frego N.¹, Diana P.¹, Regis F.¹, Domanico L.¹, Colombo P.², Casale P.¹, Saita A.R.¹, Hurle R.¹, Buffi N.M.³, Guazzoni G.F.³, Lughezzani G.³

¹Humanitas Clinical and Research Center, Dept. of Urology, Rozzano, Italy, ²Humanitas Clinical and Research Center, Dept. of Anatomopathology, Rozzano, Italy, ³Humanitas University, Dept. of Urology, Rozzano, Italy

Introduction & Objectives: No diagnostic strategy currently allows to completely forego systematic biopsies (SBx) in the diagnostic pathway for prostate cancer (Pca). Micro-Ultrasound (microUS) has recently emerged as a promising diagnostic tool capable of providing real-time visualization and stratification of prostate tissue. PRIMUS protocol has been developed to standardize the likelihood of PCa risk (similarly to PIRADS). Our aim was to evaluate the reliability of microUS in identifying cancer-free regions within the prostate, potentially avoiding the systematic biopsy of these regions without decreasing PCa detection rate.

Materials & Methods: Data on 66 patients undergoing microUS-guided prostate biopsies due to clinical suspicion of Pca between February and April 2019 were prospectively collected. Prostate was systematically divided in 12 regions, each of which was stratified for likelihood of PCa risk with a 1-5 score using the PRIMUS protocol. A biopsy core was obtained for each region. Any further lesion identified and classified with a PRIMUS score ≥ 4 was targeted. The presence of overall PCa and of csPCa (defined as a Gleason score ≥ 7 cancer) was determined. The diagnostic accuracy of microUS was determined.

Results: Median patient age was 67 years (IQR 63-72), median total PSA was 10.94 ng/mL (IQR 5.5-10.9) and median prostate volume was 52.5 mL (IQR 29.5-69). 24/68 (35.3%) subjects had a positive digital rectal examination; 20(29.4%) subjects were in the repeat biopsy setting. Overall PCa and csPCa detection rates were 62.1% (41/68) and 54.5% (36/68). A PRIMUS score 1 was assigned to 147(18.6%) regions, resulting in 142 (96,6%) negative cores and only 2 (1.4%) cores positive for csPCa. PRIMUS score 1 provided a negative predictive value for csPCA of 98.6%. A PRIMUS 2 score was assigned to 403 (50.1%) regions, whose histology report showed 330(81.9%) negative cores and 61(15.14%) cores positive for csPCa. Patients with csPCa positive PRIMUS 2 cores also had concomitant PRIMUS 3 lesions where csPCa was identified. In 40/41 patients with PCa the core with the highest GS was located in a PRIMUS ≥ 3 region. One patient, having no PRIMUS ≥ 3 regions, was diagnosed with a GS 3+3 PCa in 1 out of 12 cores. Overall, we could virtually avoid the biopsy of 550 out of 792 (69.4%) prostate regions without missing any csPCA diagnoses while reducing the diagnoses of non-csPCA.

Conclusions: According to our preliminary results, microUS could represent a valid tool to overcome the systematic biopsy of the whole prostate. Given its high accuracy in identifying non-cancerous regions, it could be used to provide a real-time targeting of any suspicious area, while avoiding the SBx where microUS is negative. Larger scale multi-institutional efforts are still needed to further support the adoption of this tool in the diagnostic

pathway of patients with suspected PCa.