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Introduction & Objectives: Prostate cancer (PCa) standard diagnosis combines PSA testing with digital rectal examination and transrectal ultrasound guided prostate biopsies (TRUS). However, this method is not flawless as we still diagnose too many indolent cases. Multiparametric magnetic resonance imaging (mpMRI) combined with subsequent targeted biopsy in order to detect clinically significant PCa (csPCA) is appealing, but controversy still exists. We assessed the effectiveness of the mpMRI in predicting csPCA and the correlation rate between suspicious lesions identified in mpMRI and their histopathological reports provided by targeted and randomized TRUS biopsies, in our clinical sample.

Materials & Methods: We retrospectively reviewed the prostate biopsy results and mpMRI findings in 83 consecutive patients who had mpMRI between 01/01/2016 and 31/12/2017. Patients demographic and clinical issues were assessed (PSA, age, previous biopsy, PI-RADS and histopathological results). The imaging examinations were performed using a 1,5 T system and PI-RADSV2.0 was used in 70 of the 83 exams.

Results: Eighty-three patients had mpMRI in this period. Half of the exams (51%,81%, n=43) had diagnostic purposes, after a prior negative biopsy in patients with a high suspicion of harboring PCa (set A). About 25,30% (n=21) of patients were biopsy-naïve (set B). There was no significant statistical difference regarding PSA levels and age between these sets. Regarding sets A and B, 67,12% (n=43) had a PI-RADS score ≥ 3 . Of these, 30 patients had a subsequent cognitive-fusion TRUS biopsy and 30,23% (n=13) had a PCa diagnosis, with 8 harbouring csPCA. Seventeen patients had a negative subsequent biopsy, with the report revealing the presence of benign prostatic hyperplasia and/or prostatitis. Thirteen patients did not have a subsequent biopsy due to clinical reasons or loss of follow up. No PIRADS 3 suspected lesions revealed to be malignant in a subsequent biopsy. Two patients without report according to PIRADS 2.0, with high clinical suspicion of PCa, were biopsied and PCa was diagnosed.

Conclusions: We found that a high proportion of the patients who underwent mpMRI had suspicious lesions (PI-RADS score ≥ 3). However, only a quarter of the biopsied patients had csPCA; this is similar to traditional TRUS randomized biopsies results. These results may be due to the small number of our sample or a lack of reproducibility in interpreting mpMRI findings, since our institution does not have expert urologists and radiologists to perform mpMRI and targeted biopsies. Also, considering that no PIRADS 3 suspected lesion revealed to be malign, it may support the trend to consider these lesions non suspicious. Our findings alert us for the need to improve accuracy regarding mpMRI interpretation and subsequent guided biopsy so that there is an efficient diagnosing, improving csPCA detection and treatment selection.