Systematic prostate sampling in addition to mpMRI-targeted prostate biopsy improves cancer detection rate: results from a large multicenter retrospective series.

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Objectives: we evaluated the added value of performing a standard random sampling of the prostate in addition to mpMRI-targeted cores, considering prostate cancer (PCa) and clinically significant (cs) PCa detection, in a large multicenter series.

Patients and methods: Starting from a multicenter retrospective database of 2.115 mpMRI-targeted biopsies, 1.119 patients were enrolled, from 2010 to 2017. The Koelis™ platform was used to perform the biopsies, which consisted in targeted (median 3 cores per target) and systematic (12 to 14 cores) sampling. Our primary outcomes consisted in overall and csPCa detection rate (CDR) of both target and systematic biopsies. Also, the potential predictors of PCa detection were investigated and tested.

Results: About half (48%) and one-third (33%) of the patients undergoing biopsy were diagnosed respectively with PCa and csPCa, using targeted cores only. Detection for all cancers was augmented by 15% (and for csPCa by 12%), by considering the systematic sampling. Lesion scored as PI-RADS 3, 4 and 5 corresponded to 35%, 69%, and 92% of PCa detection rates, respectively. PCa diagnosis was consistently associated with higher PI-RADS score and positive digital rectal examination, whereas biopsy-naïve status was a predictor of csPCa.

Conclusion: High CDR for both every PCa and csPCa, in daily practice, is attained by targeted biopsies; however, the systematic sampling of the gland significantly improves detection rate. A significantly increased risk to be diagnosed with PCa was observed in patients with an elevated PI-RADS score and/or a positive DRE had. Moreover, patients undergoing their first prostate biopsy showed a higher probability of csPCa detection.
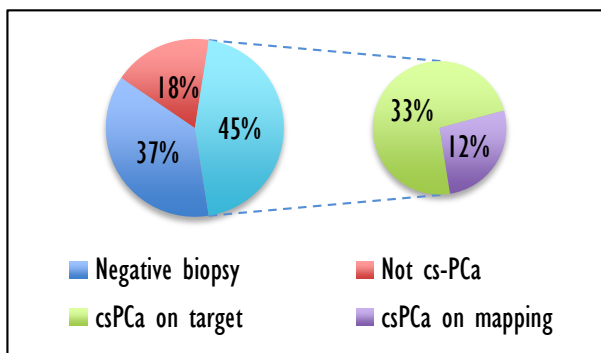
mpMRI PI-RADS value	PCa detection rate (%)
3	35
4	69
5	92