



## Systematic prostate biopsies may detect more insignificant cancer than MRI lesion target prostate biopsies

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**Objective:** to compare pathological characteristics of biopsy cores among patient undergoing a first round prostate biopsy, between MRI lesion-targeted cores and systematic cores.

**Methods:** We retrospectively reviewed 80 patients who came at our department for a first round of transrectal ultrasound guided prostate biopsy and who were at risk of localized prostate cancer.

**Exclusion criteria were:** history of prostate cancer, previous prostate biopsy, local advanced ( $\geq T3a$  TNM stage) or metastatic prostate cancer at examination (digital rectal and clinical examination, PSA serum level  $> 20 \text{ ng/mL}$ , prostate MRI staging  $\geq T3a$ ).

**Inclusion criteria were:** prostate multiparametric MRI showing suspicious intra-prostatic lesion.

MRI/TRUS fusion and lesion targeting was performed using Urostation<sup>®</sup> system (Koelis, France).

For each patient, **12 cores** were taken from **systematic sampling**, then **2 to 3** additional cores were taken in the index **MRI lesion**.

Positive core was defined by the presence of prostate cancer from histological examination.

**Cancer was insignificant** if it responded to all of the following criteria:

Maximum cancer **length** by core  $\leq 5 \text{ mm}$

Maximum **Gleason** score by core  $\leq 6$

**Number** of positive cores by patient  $\leq 2$

### Results :

	MRI targeted biopsy -	MRI targeted biopsy +	Total
Systematic biopsy -	34	3	37
Systematic biopsy +	8	35	43
Total	42	38	80

**Table 1.** Cross-relation of pathological outcomes between MRI lesion targeted and systematic biopsy

	Significant cancer	No or insignificant cancer		Total
MRI +	37	1 (33% out of 3)	PPV=97.4%	38
MRI -	3	39	NPV=92.8%	42
	Se=92.5%	Sp=97.5%		
STD +	39	4 (50% out of 8)	PPV=90.7%	43
STD -	1	36	NPV=97.3%	37
	Se=97.5%	Sp=90%		
Total	40	40		80

**Table 2.** Effectiveness of systematic (STD +/-) and MRI targeted (MRI +/-) biopsy.

**Systematic biopsy** may be **more sensitive** than MRI targeted biopsy but it **may detect more insignificant** prostate cancer.

However we could not show significant differences because of the too small number of patient.

### Conclusion:

MRI lesion-targeted biopsies tend to detect significant lesions more specifically than systematic biopsy, however the study must be continued on a larger number of patients.