Comparison Between Systematic and MRI Targeted Prostate Biopsy for Patient with No History of Prostate Cancer Attending a First Round of Trans-Rectal Ultrasound Biopsy Procedure

Introduction: We wanted to compare the effectiveness of systematic biopsies and MRI targeted biopsies for a first round of prostate biopsy procedure among a population of men at risk of localized prostate cancer with no history of prostate cancer.

Materials and Methods: We retrospectively reviewed all patients who came at our department for a first round of prostate biopsies and who were at risk of localized prostate cancer.

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

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

All patients attended trans-rectal ultrasound biopsies with a Medison V10 Ultrasound system and the Urostation® registration device (Koelis, France): 12 systematic cores were realized and 2 or 3 additional cores in the MRI targeted lesion

Positive core was defined by the presence of prostate cancer on anatomopathological examination.

Results:

Number of patients	80
Age (years)	63.9±7.34 [49.9; 81.2]
Prostate Volume (mL)	44±22 [17; 160]
Suspicious DRE (clinical stage≤T2c)	20
PSA (ng/mL)	7.85±3.45 [2.8; 20]

Table 1. Patients Characteristics. Results are showed as Mean±Sd[Range] . DRE: Digital Rectal Examination

	Systematic Biopsies	MRI Targeted Biopsies	p
Number of cores	948	201	
Number of positive cores	158	77	
% of Positive cores (number)	16.67%	38.31%	<0.001
Cancer mean length by core (mm)	6.72	8.93	0.002

Table 2. Anatomopathological results of prostate biopsy cores

Conclusions: MRI targeted cores seem to be more accurate than systematic cores to detect localized prostate cancer and could prevent the use of systematic prostate biopsies to detect cancer and consequently decrease the number of cores for a prostate biopsy diagnosis procedure.