

Comparison between transrectal and transperineal fusion guided prostate biopsy for the diagnosis of prostate cancer

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Introduction & Objectives: Fusion guided prostate biopsy has revolutionised the diagnosis of prostate cancer (PC). Transperineal approach has higher accuracy than transrectal approach and makes it feasible to obtain samples of the anterior aspect of the prostate. However, transrectal approach can be performed in an outpatient setting under local anaesthetic. Our objective is to compare PC detection rate of fusion guided prostate biopsy by transrectal and transperineal approaches.

Materials & Methods: Retrospective review of fusion guided prostate biopsies performed between January 2019 and August 2021, comparing transrectal and transperineal approaches. Since 2020, a new protocol has been developed in our centre that consists in MRI scanning for all patients previous to first prostate biopsy, which is then performed by transrectal approach. Transperineal fusion guided prostate biopsy was performed in first prostate biopsy before 2020 and in all patients in 2nd or successive prostate biopsies. PSA, prostate volumen, size and location of lesion in MRI, PIRADS classification, as well as anatomopathological findings and Gleason Grade groups were analysed.

Results: 220 patients underwent fusion guided prostate biopsy: 46(20.9%) and 174(79.1%) by transrectal and transperineal approach, respectively. Comparative analysis is shown in the table below:

Variable	Transperineal approach	Transrectal approach	p
	n (%), mean (SD)	n (%), mean (SD)	
PSA (ng/ml)	8.8 (4.76)	6.5 (2.9)	0.002
Prostate volume (cc)	65.6 (38.3)	53.1 (25.2)	0.037
Size of lesion (mm)	12.2 (5.3)	10.9 (5.1)	0.199
PIRADS			
- 3	30 (17.5%)	13 (37.1%)	0.026
- 4	97 (56.7%)	17 (48.6%)	
- 5	44 (25.7%)	5 (14.3%)	
Malignancy confirmed MRI lesion	104 (60.8%)	21 (45.7%)	0.092
Gleason Grade groups			
- 1	14 (12.0%)	8 (26.7%)	0.117
- 2	32 (27.4%)	6 (20.0%)	
- 3	33 (28.2%)	11 (36.7%)	
- 4	30 (25.6%)	5 (16.7%)	
- 5	8 (6.8%)	0 (0.0%)	

A higher rate of positive biopsies of MRI lesions were found in transperineal biopsies vs transrectal biopsies (104(60.8%) vs 21(45.7%)), although these differences were not statistically significant ($p=0.092$).

Similarly, in the subgroup of anterior zone lesions a higher rate of PC detection was found in transperineal biopsies versus transrectal biopsies (21(52.5%) vs 5(12.5%)). These differences did not reach statistical significance ($p=0.0695$).

Conclusions: In our study there are no statistically significant differences regarding PC detection rate, including those with anterior zone lesions in MRI, between transrectal and transperineal approaches. Transrectal approach allows prostate biopsies to be performed in an outpatient setting under local anaesthetic, which can result in shorter waiting times for the diagnosis of PC.