

PP-03

Repeat prostate biopsy after initial benign standard biopsies – Comparison of 3 advanced techniques; MRI/TRUS fusion transperineal, transperineal sector, extensive transrectal prostate biopsies (MD Anderson protocol)

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Introduction & Objectives: Large cohort of men are faced with continuing uncertainty following previous benign biopsy with ongoing concern due rising PSA or changes suspicious for cancer in previous biopsies. We compared detection rate and efficacy of 3 advanced biopsy techniques performed in 2 European centers: MRI/TRUS fusion transperineal prostate (MTTP), transperineal sector (STP) and extensive transrectal prostate biopsies (MD Anderson protocol; MDA)

Materials & Methods: Medical notes of the 3 groups of patients with persisting suspicion whom underwent MTTP, STP or MDA biopsies were reviewed.. 738 patients were identified retrospectively in the 2 centers. 201 patients underwent MTTP biopsies, 188 patients underwent STP biopsies and 349 underwent MDA biopsies. Patients undergoing MTTP biopsies had a multiparametric MRI prior to the biopsy: suspicious lesions on MRI were contoured and the image was fused to a live transrectal ultrasound image for guidance of lesion biopsies; in addition sector biopsies were taken. Transperineal sector (STP) biopsies are taken from peripheral and transition zones using a division of the prostate into six sectors for guidance. MDA biopsy involves sampling of anterior peripheral and transition zones as well as standard sextant biopsies (up to 20 cores). Low-grade disease was defined as Gleason 7 (3+4) or lower and high-grade disease was defined as Gleason score 7 (4+3) or higher. Statistical analysis was performed using SPSS 16 software with chi-square correlation test for univariate and binary logistic regression for multivariate analysis.

Results: There was no statistical difference between the groups in relation to mean age 65 ± 7 years, mean PSA 12.21 ± 10.6 ng/ml and mean prostate volume 58 ± 29 ml. The mean number of cores for MTTP was 27 ± 5 and for STP 34 ± 16 . Cancer detection rate in the MTTP group was 107/201 (53%), 79/188 (42%) in the STP group and 106/243 (30%) in the MDA group ($p=0.0005$). Detection rate of high-grade disease was 40/107 (37%), 22/106 (21%) and 20/79 (25%) respectively ($p=0.031$).

Conclusion: Our data suggests that MRI/TRUS fusion transperineal biopsy has a higher cancer detection rate compared to transrectal and transperineal biopsy techniques without MRI guidance. In addition, MRI/TRUS fusion transperineal biopsy identifies a higher proportion of clinically significant high-grade prostate cancer. Cost effectiveness studies are required to assess health economic impact of each technique.