

## MRI and ultrasound guided prostate biopsy using Koelis®: A pilot study

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### **Background**

Transrectal ultrasound (TRUS) guided biopsy is regarded as the gold standard for diagnosing prostate cancer. However, exact biopsy location cannot be verified, and there is a high rate of false negative biopsies. Magnetic resonance imaging (MRI) prior to biopsies can identify significant tumors, and assist the surgeon in making targeted biopsies. Still it is not possible to document that a suspicious lesion has been biopsied using TRUS. Koelis® 3D guided TRUS biopsy is a new method that can document the exact biopsy location, and combined with MRI fusion, targeted biopsies can be performed.

The aim of this study was to evaluate Koelis® 3D ultrasound and MRI fusion guided biopsy technique.

### **Material and method**

Eightyone patients (50-80yrs, mean 64yrs) underwent MRI prior to prostate biopsies. Subgroups were; primary biopsy: 11pts, 1st-5th rebiopsy: 54pts, and biochemical recurrence (BCR) after radiotherapy: 16pts.

All previous biopsies had been performed using conventional TRUS technique. Median PSA 7ng/l. Median prostate volume 30ml.

MRI: 1,5T Avanto (Siemens, Erlangen) and body array coil. Sequences: ax3D T2w and DWI. Post imaging processing program: Nordic ICE®.

Biopsies: 3D SonoaceV10 (Medison® Korea), navigation system: Koelis® Grenoble, France.

MRI was classified as tumor- positive or negative. Suspicious tumors were highlighted on axial T2w images. Image fusion was performed retrospectively in the 56 first patients, and prospectively in the last 25 patients.

Fischer's Exact Test was used for statistical analysis.

### **Results**

MRI positive 74/81(91%). Biopsy positive 51/81(63%). Both biopsy- and MRI negative 7/7 pts (100%),  $p < 0,001$ . Specificity 23%, sensitivity 100%.

Biopsy positive subgroups: Primary biopsy positive 9/11 (81%), 1st-5th rebiopsy 31/54 (57%), BCR after radiotherapy: 11/16 (69%). Gleason score 6(n=17), 7(n=18), 8(n=13) and 9(n=2).

### **Conclusion**

MRI and Koelis® 3D ultrasound fusion guided biopsy may increase the rate of positive biopsies compared to conventional TRUS biopsies without MRI.