Focal HIFU (Focal One®) treatment of localized prostate cancer diagnosed with MRI-ultrasound fusion targeted biopsies (Koelis®): Preliminary results

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Introduction: To assess the focal HIFU treatment (Focal One®) after 6 months of follow-up for localized prostate cancer diagnosed with MRI-ultrasound fusion targeted biopsies (Koelis®).

Methods: A single-center prospective study was performed from February to May 2014 with the inclusion criteria: clinical stage T1c or T2, PSA <20ng/ml, multi-parametric MRI. A 12 extended biopsy scheme, 4 anterior biopsies and 2 additional biopsies targeted to each MRI lesions were performed for each patient (figure1. MRI-T2 prostate lesion and figure2. prostate delimitation (red) and targeted lesion (yellow)). Only Gleason score (GS) ≤7 were included. Questionnaire (IPSS, IIEF-17) and PSA were performed at 1, 3 and 6 months and MRI-ultrasound fusion targeted biopsies at 6 months.

Results: Twenty-three patients were included. The mean age was 65.7 years (51-80), and PSA 7.6 ng/mL. The GS was 3+3, 3+4 and 4+3 for 6, 14 and 3 patients respectively. The mean (range) prostate volume was 56cc (18-135), the mean number of positive biopsies was 3 (1-5) in which 2.4 targeted, with a mean total length of cancer of 14 mm with 11 mm on targeted biopsies (Figure3. Prostate modelisation (blue grid), targeted lesion (yellow) and extended biopsies (green sticks) and targeted biopsies (red sticks)). The mean (range) operative time was 75min (26-106) with a treated volume of 11cc (4-16). The mean hospital stay was 4.5 days (2-12). Eleven Clavien 1 complications (5 haematuria, one urinary tract infection, 4 dysuria and 4 urinary retention) and one Clavien 3 (TURP surgery) were reported. The IPSS was 7, 10.8 and 16 before surgery, at 1 month and 3 months, respectively; and IIEF-5 score was 14.2, 13.8 and 15 before surgery, at 1 month and 3 months, respectively.

Conclusion: The focal HIFU treatment (Focal One®) is feasible with low morbidity. Preoperative evaluation of LUTS is essential to reduce postoperative complications.