

## **Hemi Salvage HIFU and Apex Sparing Salvage HIFU in Patients with Radiorecurrent Prostate Cancer: Impact on Urinary Continence: A Pilot Study**

**Introduction and Objective:** One-third of patients are treated with external radiation beam therapy (ERBT) for localized prostate cancer experience local recurrence, based upon PSA and biopsy. Salvage treatment options include prostatectomy, cryoablation, and high intensity focused ultrasound (HIFU). Whole gland treatment in these patients offers acceptable cancer control, but carries a risk up to 50% of urinary incontinence. HIFU is the least invasive approach, and can be tailored with millimeter precision. Hemi salvage HIFU (HSH) and Apex sparing salvage HIFU (ASSH) maintains continence and can probably offer comparable cancer control to whole gland treatment in selected candidates. The aim of this study was to evaluate the urinary function after HSH and ASSH in patients with local recurrence after ERBT.

**Materials and Methods:** There were 27 patients, mean age 68 (57-79) with biochemical- and biopsy proven local recurrence without distant metastases. Subgroups: Nineteen patients with unilateral cancer were treated with HSH and eight patients with negative apex biopsies were treated with ASSH. Gleason score: 6(2pts), 7a(4pts), 7b(8pts), 8(10pts), 9a(1pt), 10(1pt). Three patients were on androgen deprivation therapy (ADT). Pre-treatment mean PSA: 5,5 ng/ml (range: 0,8-32,0). Time from ERBT to HIFU: 6-11 years. Mean follow-up time 10 months (range 1-21). MRI: 1.5T Avanto (Siemens, Erlangen) and body array coil. Sequences: ax3D T2w and DWI. Post imaging processing program: Nordic ICE®, Norway. Biopsies: 3D Accuvix V-10, Medison®, Korea, navigation and soft fusion system: Koelis® France. Untreated margin in apex sparing group (8, 8, 9, 9, 11, 12 and 17mm) was based upon ultrasound measurements of the distance between the sphincter and the positive biopsies. HIFU treatment: Ablatherm®, France. Degree of urinary continence: based on UCLA-PCI questionnaire, measured by pads needed/day.

**Results:** Dry (no pad) 3 months after treatment: 16/17 pts in HSH group and 7/8 pts in ASSP group. 0-1pad: 1/7 pts in ASSH and 1/16 in HSH. Two patients treated with HSH used 1pad both before and after treatment. Mean PSA at 3 months: 1,3(20 pts), 6 months: 1,2(15 pts), 9 months: 1,3(8 pts), 12 months: 2,1(6pts). Two pts are on ADT and one pt is on LHRH after treatment.

**Conclusion:** Hemi salvage HIFU and apex sparing salvage HIFU is beneficial in order to maintain continence compared to whole gland treatment. For appropriate patient selection, accurate and documentable biopsies are mandatory. Further prospective clinical studies are needed to validate the method and long-term cancer control.