

## Feasibility of MRS for the evaluation of recurrence after the focal therapy with HIFU in the treatment of prostate cancer

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**Purpose.** Focal therapy (FT) with High-Intensity Focused Ultrasound (HIFU) is a feasible minimally invasive therapeutic option for selected patients. We evaluated the efficacy and feasibility of MR spectroscopy (1H-MRS) for the recurrence of after FT with HIFU in the treatment of localized prostate cancer (PCa).

**Methods.** 32 patients received FT using a HIFU device, Sonablate™ 500 (Focus Surgery, IN, USA). Criteria of FT were cancers that confined to one lobe judged by systematic biopsies more than 12 cores and magnetic resonance imaging. FT ablated the peripheral zone of both lobes and the ipsilateral transitional zone. During the follow-up period, PSA was measured at 1 months, and then at intervals of 3 months up to 60 months after FT. Scheduled biopsies and 1H-MRS were performed at 6 and 12 months after treatment. Existence of PCa was determined by the ratio of (choline + creatine)/citrate. Cut off value was set at 1.07.

**Results.** A median follow-up was 51.5 (range, 8-66) months. The biopsy-negative rates at 6 months and 1 year were 23 of 32 (71.9%) and 15 of 21 (71.4%), respectively. The median PSA nadir was 1.07ng/ml. 1H-MRS predicted the existence of cancer after HIFU. Areas with positive 1H-MRS were significantly associated with the positive biopsies after FT (p=0.0016).

**Conclusions.** H-MRS might be an adequate modality for the follow-up after HIFU.