

HIGH-INTENSITY FOCUSED ULTRASOUND FOR LOCALIZED PROSTATE CANCER

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Purpose: Prostate cancer is the leading malignancy in the United States and is also increasing Japanese males. Efforts are being made to provide minimally invasive alternative treatment options with equal efficacy and fewer side effects. High-intensity focused ultrasound (HIFU) delivers ultrasound energy with rapid thermal necrosis of tissue in the focal region without damaging the surrounding tissue. Preliminary clinical results of transrectal HIFU in stage T1b-2N0M0 prostate cancer are presented.

Patients and Methods: We performed 52 HIFU treatments in 41 patients with biopsy-proven localized prostate cancer using a modified SonablateTM-200 HIFU device. Thirty-one patients received 1 HIFU treatment, 9 patients received 2 sessions and 1 patient received 3 sessions, based on prostate size or follow-up serum prostate-specific antigen (PSA) levels. All patient characteristics and the clinical outcome of 22 patients followed more than 6 months (mean, 13.5 months) were analyzed.

Results: A complete response (CR) was obtained in 100% (20/20) of patients whose preoperative PSA level was < 20 ng/mL evidenced by a negative postoperative prostate biopsy and no elevation on three successive PSA determinations. Also, 50% (1/2) patient whose preoperative PSA level was \geq 20 ng/mL showed a CR. Rectourethral fistula and urethral stricture were noted in 1 and 2 patients, respectively, and 1 patient underwent transurethral resection of the prostate because of prolonged urinary retention.

Conclusion: Our results show that HIFU can achieve complete obliteration of the prostate and elimination of prostate cancer with an acceptable side effect profile and unlike most other prostate treatments, is repeatable. Transrectal HIFU may be useful option for patients with localized prostate cancer.