

High-Intensity Focused Ultrasound for Localized Prostate Cancer

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Introduction and Objectives High-intensity focused ultrasound (HIFU) delivers ultrasound energy via a transrectal probe to produce rapid thermal necrosis of tissue in the focal region without damaging the surrounding tissue. Our main objectives were to evaluate efficacy and safety of the HIFU for the treatment of T1b-2N0M0 stage prostate cancer.

Methods The clinical outcome of 33 patients with preoperative PSA less than 25 ng/ml followed for at least 6 months (mean 13.2 months) was summarized. Demographics of these patients are (mean): age 71.8 years, prostate volume 26.2 ml, PSA 10.97 ng/ml. Gleason scores: 2-4, 5-7 and 8-10 in 9, 22 and 2 patients respectively. One, two and three HIFU treatment sessions were 23, 9 and 1 patient respectively. A mean operating time was 2 hrs 52 min (55-356 min). All patients were treated under epidural anesthesia. Patients were followed with sextant biopsies and serum PSA.

Results Ninety-one % (30/33) of patients demonstrated a complete response (CR) (other than Failure that is identified by any positive postoperative prostate biopsy regardless of the PSA concentration or no three successive elevation of PSA with a velocity³0.75 ng/year in patients with negative biopsy). Sixty-four% (21/33), 24% (8/33), 9% (3/33) and 3% (1/33) of patients had PSA nadirs of less than 0.50 ng/ml, 0.51-1.00 ng/ml, 1.01- 2.00 ng/ml and 2.01-4.00 ng/ml, respectively. Negative biopsy rate observed in 100%(33/33). One patient underwent transurethral resection of the prostate for prolonged urinary retention, one patient developed a rectourethral fistula and 9 patients developed a urethral stricture.

Conclusions Our early follow-up would suggest that transrectal HIFU therapy can be used to ablate localized prostate cancer with less severe adverse events with a relatively high CR rate and the ability to deliver repeated HIFU treatments. Additional follow-up will be required to confirm these results.