

Salvage HIFU effectively reduces PSA in patients with biochemical recurrence after attempted curative treatment for prostate cancer

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Objective

High intensity focused ultrasound (HIFU) has been proposed as a form of salvage treatment for men who have failed primary curative therapy of organ confined prostate cancer (PCa). Visually Directed HIFU™ allows the operator to alter the treatment power based on real-time ultrasonic changes in the target tissue. This minimises the risk of damage to surrounding structures and optimises energy deposition.

Materials and Method

51 patients with biochemical and histologically-confirmed recurrence, presumed to be organ-confined following staging with MRI and bonescan, were treated over a 20-month period using the Sonablate®-500 device (Focus Surgery, IN, USA). Our cohort included 30 post external beam radiotherapy, 4 post radical prostatectomy, 2 after low-dose-brachytherapy, 5 following a combination of brachytherapy and external beam radiotherapy and 10 following failed photodynamic therapy or cryosurgery. All received a single HIFU treatment. PSA kinetics were evaluated as a surrogate of short-term oncological efficacy.

Results

Mean age was 67 years (range 57-78 years). The mean pre-HIFU PSA was 7.39ng/ml (range 0.20-28.56ng/ml). At 3-6 months follow-up, approximately 50% of the entire cohort achieved a PSA of <0.2ng/ml. In the salvage HIFU for failed external beam radiotherapy, 16/30 were on hormonal treatment prior to treatment. Toxicity of treatment included Stricture 10/30 (33.3%); Urine infection 8/30(26.6%); Incontinence 2/30 (6.6%); Recto-urethral fistula 1/30 (3.3%).

3/30 failed within 6 months with evidence of residual prostate cancer on biopsy (1/3) or distant metastatic disease (2/3).

Conclusion

Transrectal Visually Directed HIFU™ is able to significantly lower the PSA in a large proportion of men who have failed previous curative interventional therapy for presumed organ-confined PCa. In this small cohort, 50% of men were able to achieve the robust target PSA nadir of <0.2ng/ml which has previously been shown to be associated with good clinical outcome. These results are considerably better in those having salvage HIFU for failed radiotherapy. These results therefore support the continued evaluation of HIFU as a salvage treatment in localized recurrence of PCa. The difficulty in salvage therapy is that of excluding men who have micrometastatic disease.