

## HIFU for Localized Prostate Cancer: 6 Year Experience

Toyaki Uchida, Sunao Shoji, Yoshihiro Nagata  
Department of Urology, Tokai University, Hachioji Hospital, 1838 Ishikawa-machi, Hachioji Tokyo192-0032,  
Japan

*T092 Presented at the International Society for Therapeutic Ultrasound (ISTU5) in Boston,  
October 28, 2005*

### Introduction

HIFU delivers intense ultrasound energy, with consequential heat destruction of tissue at a specific focal distance from the probe without damage to tissue in the path of the ultrasound beam. We evaluated biochemical disease-free survival, predictors of clinical outcome and morbidity in patients with localized prostate cancer treated with HIFU.

### Method

A total of 237 consecutive patients underwent HIFU with the use of Sonablate® (Focus Surgery, Indianapolis, USA). The median age and PSA level were 69 years (range 45-88) and 9.50 ng/ml (range 3.39 to 89.60). The TNM stage was T1c in 119 patients, T2a in 84 patients and T2b in 34 patients. The histologic grade was Gleason score 2 to 4 in 25 patients, 5 to 7 in 183 patients and 8 to 10 in 29 patients. Neoadjuvant hormonal therapy was delivered in 134 patients. The median operating time was 128 min (range 55 to 390 min). The median follow up period for all patients was 20.0 months (range 3 to 74). The American Society for Therapeutic Radiology and Oncology (ASTRO) Consensus Panel criteria for biochemical failure, i.e., three consecutive increases in post-treatment PSA after a nadir has been achieved, was used to define biochemical failure. None of the patients received androgen deprivation after HIFU or other anticancer therapy before documentation of a biochemical failure.

### Results

The biochemical disease-free rates at 1, 3, and 5 years in all patients were 81%, 77% and 77% respectively. The biochemical disease-free rates at 5 years for patients with pretreatment PSA less than 10 ng/ml, 10.01 to 20.2 ng/ml and more than 20.0 ng/ml were 93%, 75% and 24%, respectively ( $P < 0.0001$ ). The biochemical disease-free rates at 5 years for patients low, intermediate and high risk groups were 97%, 71%, and 64%, respectively ( $p < 0.0001$ ). According to multivariate analyses, preoperative PSA ( $p < 0.0001$ ) was a significant independent predictor of biochemical recurrence. Forty-four (19%) patients developed a urethral stricture, 6 (3%) patients underwent transurethral resection of the prostate for prolonged urinary retention or urethral stricture, 15 (6%) and 2 (0.8%) patients developed epididymitis and a rectourethral fistula. Twenty-four percent (15/462 patients) complained of postoperative erectile dysfunction. Retrograde ejaculation was observed in 12% (14/120) of the potent patients. Transient grade I incontinence was observed in one (0.4%) patient.

### Conclusions

HIFU therapy appears to be a safe and efficacious minimally invasive therapy for patients with localized prostate cancer, especially those with a pretreatment PSA level than 20 ng/ml.

