

High-intensity focused ultrasound for the treatment in 517 patients with localized prostate cancer

Uchida T¹, Nitta M¹, Hongo S¹, Shoji S¹, Nagata Y¹, Usui Y², Terachi T²
¹Tokai University Hachioji Hospital, Tokyo, Japan; ²Tokai University, Tokyo, Japan

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Introduction

The purpose of the study was to assess the prostate-specific antigen (PSA) level with a long-term follow-up after high-intensity focused ultrasound therapy (HIFU) for prostate cancer, and to identify the predictors for an improved disease-free survival.

Methods

Between 1999 and 2007, 517 patients who underwent treatment with the Sonablate[®] HIFU device (Focus Surgery, Indianapolis, USA) for T1-3 N0M0 prostate cancer, with at least 1 year of follow-up, were studied. During the follow-up evaluation, PSA measurement and prostate biopsy were performed. Biochemical failure was defined according to the criteria recommended by the American Society for Therapeutic Radiology and Oncology (ASTRO), i.e., a rise of 2 ng/ml, or more, above the nadir PSA, consensus panel. None of the patients had received androgen deprivation, with or without other anticancer therapy, prior to documenting a biochemical failure. The median follow-up was of 22 months duration. Both Kaplan-Meier curves and multivariate regression analyses were employed.

Results

The median age, PSA and prostate volume were 68 years, 9.2 ng/ml and 22 ml, respectively. The stage was determined to be as follows: T1c in 214 (41.4%), T2a in 114 (22%), T2b in 61 (11.8%) and T3 in 20 (4.5%) patients. The Gleason scores were 2 to 4, 5 to 7 and 8 to 10 in 36 (7%), 316 (61.1%) and 57 (11%) respectively. The biochemical disease-free survival rate (bDFR) at 8 –years for all patients was 64.5%. The actual 8-year bDFR with the low, intermediate and high –risk groups were 84%, 64% and 45%, respectively (p<0.0001). Negative prostate biopsy findings were obtained in 83% of the patients. A multivariate analysis identified the pre-treatment PSA level (p<0.0001) and the disease stage (p<0.0125) to be associated with the bDFR. Urethral stricture and epididymitis were observed in 16% and 4% of the patients. Transit grade I incontinence was noted in 0.8% of the patients. The majority of men (86%) who had erections prior to therapy managed to preserve their erectile function.

Conclusion

HIFU appears to be both an effective and well tolerated procedure for men with localized prostate cancer, especially those with low- and intermediate-risk.