Abstract:

OBJECTIVES: To determine whether end-fire probes increase the prostate cancer (PCa) detection rate. Enhancing the PCa detection rate is the main goal of biopsy protocols. Prostate biopsy is limited by side-fire probes to a longitudinal axis, but end-fire probes allow biopsy cores to also be taken in the transverse section. METHODS: A total of 2625 patients underwent systematic sextant biopsy in three institutions using the same protocol. Three different ultrasound probes were used—the Kretz Combinor and Bruel & Kjaer side-fire probes and the ATL HDI end-fire probe. We retrospectively evaluated the influence of the probe on the PCa detection rate. RESULTS: The Kretz probe was used in 384 men, the Bruel & Kjaer probe in 598 men, and the ATL probe in 1643 men. Overall, 35.2% had PCa detected. Analyzing all patients, no statistically significant difference (P = 0.73) was found for the probes, but the subgroup with a prostate-specific antigen level of 4 to 10 ng/mL demonstrated a statistically significant improvement in the detection rate using the end-fire probe (31.3% versus 24.5% and 21.5% for the side-fire probes, P = 0.01). Patients with nonpalpable PCa also demonstrated a statistically significant increase in detection with the end-fire probe (P = 0.004). Multivariate analysis confirmed that the ultrasound probe is an independent parameter to enhance
the PCa detection rate. CONCLUSIONS: Our results showed that end-fire probes provide a statistically significant improvement in the PCa detection rate compared with side-fire probes in patients with a prostate-specific antigen level of 4 to 10 ng/mL and nonpalpable disease. The reason could be the facilitated sampling in the most lateral part of the peripheral zone. Our results suggest that the widespread use of end-fire probes for prostate biopsy could enhance the PCa detection rate.