**Diagnostic Significance of Prostate-Specific Antigen, Density Accuracy and PSAD Adjusted by Transition Zone Volume in Men with PSA Levels Between 2.0 and 4.0 ng/ml**

**Introduction and Objective**: To assess the diagnostic significance of prostate-specific antigen (PSA), density (PSAD) accuracy, and PSAD adjusted by transition zone volume (PSATZD) in men with PSA levels between 2.0 and 4.0 ng/ml.
**Materials and Methods**: Between 2000 and 2010, 138 men with PSA levels between 2 and 4.0ng/ml underwent transrectal ultrasonography (TRUS) and 12-core prostate biopsy. Diagnostic accuracies for various cut-offs of PSAD and PSATZD were investigated according to subdivided PSA levels of 2.0 to 3.0 ng/ml and 3.1 to 4.0 ng/ml.
**Results**: The detection rate of prostate cancer was 23.8% (32/134). The percentage of patients with extracapsular disease was 28.1% (10/32) and primary Gleason grade 4 or 5 was obtained in 8/32 cases (25%) patients. The transition zone volume and PSATZD in cancer cases were significantly different in comparison with those in non-cancer cases. The area under the receiver operating characteristic curve for PSATZD was significantly higher in comparison with that for PSAD in the same subdivided PSA ranges. The diagnostic efficiency for PSATZD was higher than that for PSAD. The diagnostic efficiency showed the highest value at the cut-off level for PSATZD of 0.23 and 0.28 in men with PSA levels of 2.0 to 3.0 ng/ml and 3.1 to 4.0 ng/ml, respectively.
**Conclusions**: The use of PSATZD cut-offs as a biopsy indication may reduce many unnecessary biopsies without missing most prostate cancer cases in the PSA range of 2.0 to 4.0 ng/ml.