Optimal Marker for Reduction of Unnecessary Prostate Biopsies

Introduction and Objective: We evaluated the optimal marker for prostate biopsy in daily routine to increase prostate cancer detection rate and to reduce unnecessary biopsies.
Materials and Methods: From January 2006 to Jnuary 2010, a total of 1220 patients were included in the study. Tha Abbot PSA assay was used, and pretreatment prostate specific antigen level (PSA) was measured prior digital rectal examination (DRE) and transrectal ultrasound (TRUS) guided biopsies. The individual ANN predictions were generated with the use of ANN aplication for the Abbot PSA and free PSA assays, which relies on age, PSA, percent free prostate specific antigen (%fPSA), prostate volume, and DRE. Diagnostic validity of total prostate specific antigen (tPSA), (%fPSA) and the ANN was evaluated by ROC curve analysis.
Results: PSA and %fPSA ranged from 1,049 to 10,0ng/ml (median: 5,729) and 3% to 35% (median:17%), respectively. Of all men, 253 (28,3%) demostrated suspicious DRE findings. Total prostate volume ranged from 25 to 110 cc (median:54,88). Overall, 251 (28,33%) CaP were detected. Of men with suspicious DRE, 78 (31,3%) had CaP on biopsy. The AUC of ROC curve analysis was 0,52 for PSA, 0,594 for %fPSA, and 0,679 for the ANN-output, respectively.
Conclusion: Our results in this independent cohort show that even PSA level in range from 4 ng/ml-10 ng/ml can reduce unnecessary biopsies when using ANN.