PSA and PSAD Cutoff Point to Detect Prostate Cancer in Indonesian Men

Introduction and Objective: Racial and ethnic differences exist in the incidence of prostate cancer as well as the level of prostate specific antigen (PSA) and PSA density (PSAD). Although many studies have looked at the performance of PSA and PSAD in the detection of prostate cancer, only a few have looked at it in relation to Indonesian men. The objective of this study is to find out better PSA and PSAD cutoff point in the detection of prostate cancer in Indonesian men.
Materials and Methods: A total of 404 consecutive Indonesian men underwent prostate biopsy for suspicion of prostate cancer from 2008 to 2011. The biopsy criteria include one or more of the following: serum PSA more than 10 ng/ml, PSAD more than 0,15 if PSA 4-10ng/ml, hypoechoic lesion during transrectal sonography and/or abnormal digital rectal examination.
Results: Forty-five out of 404 (11.1%) had positive biopsies. The mean age, prostate volume, PSA and PSAD were respectively 64.06 y.o, 43.03 cc, 45.59 ng/ml and 1,15. Of the 404, 131 cases (32,4%) were confirmed to be urinary retention. Positive urine culture found in 182 cases (45%). The cutoff point to detect prostate cancer as estimated by the area under ROC was 6,95 for PSA (sensitivity 97,8%, specificity 19,6%) and 0,7072 for PSAD (sensitivity 62,2%, specificity 78,7%). Positive predictive value (PPV) for this PSA and PSAD cutoff point were 11,6% and 27,5% respectively (p 0,004 and p 0,000). There was a significant correlation between hypoechoic lesion and positive biopsy results (p 0,000). Urinary retention elevates PSA cut-off point to 14,55 (sensitivity 90,9%, specificity 50%). Positive urine culture alters almost no PSA cut-off elevation. For the PSA cut-off point of more than 6,95ng/ml, the Gleason score was 81.4% and 16.3% for moderate and high grade respectively (p 0,893). While for the PSAD cutoff point of more than 0,7072 the Gleason score was 88,9% and 7,4% for moderate and high grade respectively (p 0,121).
Conclusions: PSA and PSAD cutoff point for Indonesian men in this series is relatively different from international consensus. The difference might be caused by racial variation of either prostate volume. Furthermore, these data show that PSA and PSAD cutoff point must be adjusted to racial variation to discriminate between malignant and benign disease. Urinary retention is a significant factor for PSA cutoff increase. Further studies with larger number of patients are suggested to define a better cutoff value for Indonesian men.