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Use of free to total prostate-specific antigen ratio to improve differentiation of prostate cancer from benign prostate hyperplasia in Sudanese patients

Haala M Gabra[1], Musaab A Salih[1], Abdelgadir A Elmugadam[2], Bdereldin H Elabid[3], Ghada AElfadil[2] Elmutuz H Ibrahim[4]
[1]Fedail Medical Hospital, Sudan
[2]Sudan University of Science and Technology, Sudan
[3]University of Science and Technology, Sudan
[4]AlZaiem Alazhari University, Sudan

Objectives: The aim of this study is to evaluate the use of F/TPSA ratio to improve differentiation of prostate cancer from benign prostatic hyperplasia in Sudanese patients in Khartoum state.

Materials & Methodology: A prospective, analytical, hospital based study case control study. This study was carried out in Fedail Medical Hospital during the period of 2010 to 2012. This study was performed on 200 patients as study group and 100 healthy volunteer as control group. Serum levels of TPSA (total prostate specific antigen) and FPSA (free prostrate specific antigen) were measured by Roche immunoassay e411.

Results: Detection rate of PCa for serum TPSA level 4-10 ng/ml and serum TPSA level of 10 to 20 ng/ml was (32.2%) and (54.3%), respectively. Mean F/TPSA ratio value was significantly lower in PCa patients (15.6±8.7) than in BPH group (30.3±7.4) ($p>0.05$). Among patients with serum PSA level of 4 to 10 ng/ml (n=93), mean F/TPSA ratio in BPH group (n=63) was (31.98±4.65) and in PCa group (n=30) was (14.4±4.65) ($p<0.01$). For serum PSA level of 10-20 ng/ml (n=43), mean F/TPSA ratio in BPH group (n=18) was (25.11±6.65) and in PCa group (n=25) was (15.72±8.7) ($p <0 .01$).

Conclusions: Determination of F/TPSA ratio improves differentiation of PCa from BPH. This study recommends a cut-off value of 18% to be applied to Sudanese patients.

musaabsalih@yahoo.com