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DOSE THE CLEAN INTERMITTENT SELF-CATHETERIZATION EFFECT ON SERUM PROSTATE-SPECIFIC ANTIGEN LEVELS WITH VOIDING DYSFUNCTION MALE?

Hypothesis / aims of study

Prostate-specific antigen (PSA) is one of the most useful and widely applied tumor markers in prostate cancer. It is mainly produced by prostate epitherium. The large-scale studies have documented its efficacy with regard to prostate cancer diagnosis, and as a means to differentiate benign prostatic hyperplasia (BPH) from parostate cancer. Elevated serum PSA levels are found in prostate cancer, BPH, prostate inflammation and urological procedure. Transrectal ultrasonography (TRUS) or prostatic biopsy also has been shown to cause an elevation in serum PSA levels from baseline values (1). Digital rectal examination (DRE), previously thought to cause elevation in PSA levels, is shown not to alter serum PSA levels. There are some reports about the effect of urethral catheter on PSA levels (2). However, there is no common agreement on the effect of urethral catheterization on PSA levels. Furthermore, there is no investigation previously the effect of clean intermittent self-catheterization (CIC) on serum PSA levels. In this study, we investigated whether the serum PSA levels was altered by CIC.

Study design, materials and methods

Twenty patients (aged 35-85 years, mean 60 years) with performing CIC were included in this study. Patients were excluded if they were clinically suspected of prostate carcinoma or acute prostatis. Patients were examined serum PSA levels and clinical back ground. PSA was measured by using Tandem-R PSA kit (3). Serum PSA levels with 4.0 ng/ml as a normal cut-off was investigated in these patients. Additional data such as age, duration of CIC, presence of urinary tract infection, frequency of CIC per day, and prostate volume were investigated. When blood sample was taken, the time-lapse from final CIC was written down. The correlation between serum PSA levels and clinical factors was analyzed by Spearman's correlation coefficient by rank test. Furthermore, the association between serum PSA levels and coexisting clinical factors was determined by multivariate regression analysis. Statistical significance was defined as a P value of 0.05.

Results

Serum PSA levels ranged from 0.04 ng/ml to 42.37 ng/ml. The mean serum PSA level was 3.8 ng/ml and the median was 0.7 ng/ml. There was no significant correlation between serum PSA levels and age, duration of CIC, presence of urinary tract infection, frequency of CIC per day, and the time-lapse from final CIC by Spearman's correlation coefficient by rank test (Table). However, there was significant correlation between serum PSA levels and prostate volume ($P<0.05$). PSA levels of 2 patients were more than cut-off levels (PSA levels; 42.37 ng/ml, 13.01 ng/ml). Their prostate volume was large, and the volume was 105ml and 117ml, respectively. When they were received prostate needle biopsy, malignant tissue could not detected. By multivariate regression analysis, the association between the clinical factors and serum PSA values in CIC patients revealed that only prostate volume was variable factor with the PSA level ($P<0.01$)(table).

Table: The correlation between serum PSA levels and clinical factors in patients with CIC

	PSA levels	
Clinical factors	Univariate (P values)	Multivariate (P values)
Age	n.s	n.s
Duration of CIC	n.s	n.s
Prostate Volume (ml)	0.01	0.005
Frequency of CIC per day	n.s	n.s
Time-lapse from final CIC	n.s	n.s
Presence of UTI	n.s	n.s

Interpretation of results

There is no investigation previously about the effect of clean intermittent self-catheterization (CIC) on serum PSA. In our study, it is considered that CIC may not affect to serum PSA levels. Serum PSA levels was not elevated by CIC. If the serum PSA levels with CIC patients is more than cut-off levels, prostate cancer should be considered. Therefore, even CIC patients are helpful and useful to screen for prostate cancer by using with serum PSA levels.

Concluding message

The elevation of serum PSA levels in patients with CIC indicates the need of evaluation to exclude prostate cancer. However, our study is preliminary, age-matched control study with large scale is needed.

References

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