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FUNDAMENTAL AND CLINICAL STUDY OF PAP 'EIKEN'. Y.Higuchi, T.Kida. Department of Radiology, Fukushima Medical College. Fukushima.

This paper describes our fundamental and clinical study of serum PAP with a 'Eiken' PAP RIA Kit.

We measured a total of 121 sera (20 normal controls, 29 patients with benign prostatic hypertrophy (BPH), 28 patients with prostatic cancer and 44 patients with other diseases.

The results are as follows: 1) Coefficients of variation for 3 control sera in within-assay were 2.3, 2.7, 2.4%, and the ones for 2 sera in between-assay were 14.7 and 6.5%. 2) Recovery test of 2 control sera by the use of standard sera gave 108.2 and 100.1% on the average in C.V. Dilution test of 3 sera of PAP high concentration by the use of phosphate buffer showed almost linear regression. 3) Normal value for serum PAP ranged  $1.26 \pm 0.80$  ng/ml (mean  $\pm$  S.D.) and dispersed under 2.75 ng/ml. Thus, the normal range was determined under 3 ng/ml. The mean serum PAP concentrations (mean  $\pm$  S.D.) were  $1.72 \pm 1.25$  ng/ml for BPH,  $52.13 \pm 187.15$  ng/ml for prostatic cancer and  $1.26 \pm 1.64$  ng/ml for other diseases. 4) PAP and Ac-P did not correlated high ( $r=0.635$ ), and PAP and CEA correlated high ( $r=0.885$ ) in the case of prostatic cancer. As for the stage D, PAP was more useful than CEA, and was significant in tracing the progress of treatment.

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CORRELATION BETWEEN EXTENT OF METASTATIC LESIONS IN WHOLE BODY BONE SCINTIGRAPHY OF PATIENTS WITH PROSTATIC CANCER AND PROSTATIC ACID PHOSPHATASE (PAP) IN BLOOD WITH PAP RIA KIT 'EIKEN'. T.KIDA, Y.HIGUCHI. DEPARTMENT OF RADIOLOGY, FUKUSHIMA MEDICAL COLLEGE.

Whole body bone scintigraphy of thirteen patients who were pathohistologically confirmed prostatic cancer was processed by four colors, and then the extent of bone metastases was estimated quantitatively. On the basis of this estimation, the grade of the expansion of bone metastases was classified into 4 grades (0, 1, 2 and 3 grades).

And then, correlations of the expansion of bone metastases with PAP, ACP and ALP levels in blood were investigated.

The results are as follows:

1) Correlation between the extent of bone metastases and PAP levels was relatively high ( $r=0.81$ ).

2) As for the relation between the expansion grade of bone metastases and PAP levels, the levels did not increase in 0 and 1 grades, but markedly increased in 2 and 3 grades. ACP also showed a little similar tendency.

3) In the correlation of PAP with ACP and with ALP, ACP ( $r=0.78$ ) was higher than ALP ( $r=0.42$ ).

4) Therefore, PAP levels seem to be a good index of the extent of bone metastases in prostatic cancer.

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CLINICAL EVALUATION OF THE PAP VALUE WITH THE NEWLY APPLIED RIA ASSAY KIT. I.KOGA, K.FUJII, K.ISURUGI, S.KOMINE, S.HARA, N.ISHIDA. NATIONAL MEDICAL CENTER HOSPITAL TOKYO.

The increase of the prostatic acid phosphatase value in the prostatic cancer patients has been published by many authors. Enzyme assay method for the measurement of PAP had been used. But the sensitivity is very low. The newly developed RIA-PAP has utilized since the end of 1978 in our hospital. The method: PAP-RIA kit of Daiichi Seiyaku is used. The studied group of patient is divided largely three groups: prostatic cancer of stage A and B, prostatic cancer of stage C and D, and non cancer group of prostatitis and prostatic hypertrophy. Results: PAP value of stage C and D group is always more than 2.0 ng/ml. The decrease of PAP value was occurred in the patients who responded well for the treatment. But stage A and B group value did not always visualize more than 2.0 ng/ml. The non cancer group value is usually less than 2.0 ng/ml. Those facts might be suggested the PAP value measured with RIA method will be used for the indication of the prognosis and the recurrence detection. PAP value measured with RIA system is reliable and useful for the clinical application. Conclusion: Before the treatment of prostatic cancer the RIA-PAP should be measured. And the therapeutic results must be checked with the PAP. But our clinical study still now is going on to evaluate the exact data of clinical application.

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MEASUREMENTS OF PROSTATIC ACID PHOSPHATASE (PAP) BY RIA: COMPARISON OF PAP WITH OTHER METHOD. T.HODA, T.ASO, T.ISHIGAMI and S.SATO. KITASATO BIOCHEMICAL LABORATORIES (BRISTOL MYERS). SAGAMIHARA

A determination of prostatic acid phosphatase in serum has been used as specific tumor marker for diagnosis of prostatic cancer and for observation after treatment. However, methods hitherto to measure enzyme activity have problems in its specificity and sensitivity, and are not satisfactory. We have studied two kinds of RIA kit and also compared these kits with the Kind-King method and the counter immunoelectrophoresis method. The RIA gave 75% positive results with 16 patients having prostatic cancer; the Kind-King method and the CIEP method gave 69% positive results, respectively. With 9 patients having prostatic hypertrophy, the RIA and the CIEP method gave all negative results, but the Kind-King method gave one positive result. Based on the results of serum PAP, prostatic cancer can be distinguished from prostatic hypertrophy. In the cases of PAP concentration above 3.0 ng/ml, prostatic cancer can be suspected. When prostatic cancer is classified to its progressing stages, a tendency of increasing PAP values has been found as the stage progresses. Thus, PAP RIA is superior to the Kind-King and the CIEP method in sensitivity and accuracy. We think that PAP will further increase its significance as tumor marker.