second to third most frequent malignancy in males.

A peculiar problem associated with this tumor is the fact that the incidence of prostatic carcinoma in autopsy studies is very much higher and has been found to vary between 28.9% and 100% for the age groups 50 - 90 years. The incidence depends on age and on the numbers of stepsections taken from prostatic specimens. This finding indicates that many more men live with their prostatic carcinoma than die from it.

Unfortunately there is still no reliable method of determining beforehand which particular tumor is going to kill and which one will remain stationary. To solve this problem is the key issue in the field of diagnosis of prostatic cancer.

Rectal examination is the most important single step in the diagnosis of this tumor. Changes of consistency of prostatic tissue turn out to be due to carcinomatous growth in about 50% after histological or cytological examination has been carried out on a biopsy specimen.

At the present time there is no other reliable screening parameter for prostatic cancer although immunological and immunochemical determinations of prostatic acid phosphatase and the use of ultrasound may prove to be valuable in this respect.

A number of other markers are presently being explored, they include alkaline phosphatase, LDH isoenzymes, urinary cholesterol, urinary ketosteroids, CEA, spermine and spermidine and others.

For the diagnosis of metastases bone X-rays, bone scanning, lymphangiography, lymph-node biopsy, serum acid phosphatase and bone biopsies are commonly used parameters.

Local extension of the primary, the grade of malignancy, the elevation of serum acid phosphatase and other evidence for metastatic disease are the most important prognostic factors.

16. Purification and characterization of prostatic secretion protein (PSP), a major androgen-dependent protein in male accessory sexual glands in rat and man,
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The prostatic secretion protein (PSP) was discovered when investigating the mechanism of action of estramustine phosphate (Estracyt®), a drug used in the treatment of prostatic carcinoma. The dephosphorylated drug was shown to bind to the protein with a K_d of about 10^{-8} M, and the binding was shown to be relatively specific with regard to the ligand-binding site. The formed estramustine -PSP complex had an M_r of 46,000, as estimated by gel filtration, and an isoelectric point of about 5. The protein was purified to homogeneity using chromatography on DEAE-cellulose, Sephadex G-100 Superfine, Octyl-Sepharose CL-4B and polyacrylamide gel electrophoresis. Antibodies against the protein were raised in rabbits, and a radioimmunoassay was developed to quantitate the protein. Using this method, it was shown that PSP was predominantly found in the accessory sexual glands of the male rat. It was estimated that PSP constituted about 18% of the total protein in rat ventral prostate. PSP was also present in the dorsal and lateral lobes of the prostate and in the seminal vesicles, coagulating glands, epididymis and preputial glands of the male rat. An immunologically similar protein is also present in the human prostate, seminal vesicles and epididymis. As this protein is almost exclusively found in the male accessory sexual glands and is secreted into the reproductive tract, it may be of great importance for maintaining normal male fertility. Furthermore, it may be suggested that this protein could be used as a probe for androgen action. Quantitation of PSP in biopsies from human prostatic carcinoma may aid in predicting the individual response to treatment with Estracyt®.

17. Radioimmunoassay of human prostate-specific acid phosphatase in the diagnosis and follow-up of therapy of prostatic cancer,
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Prostate-specific acid phosphatase (PAP) in serum was determined by radioimmunoassay (RIA) (1), before and during various forms of endocrine therapy. The results of PAP-RIA were compared with those obtained by measurement of the catalytic activity of acid phosphatase. Serum concentrations of immunoreactive acid phosphatase for healthy men ranged from < 1 to 10 µg/l and for patients with advanced prostatic carcinoma from 100 to 500 µg/l. The concentrations of the enzyme in the sera of patients with benign prostatic hyperplasia were similar to those in the sera of the reference group. The survival of the immunologic activity of the enzyme at room temperature was over 48 h, and repeated freezing and thawing (three times) had no effect on the immunologic activity of the enzyme. The percentage changes in radioimmunoassayable PAP were much larger and appeared earlier than those obtained by the measurement of the catalytic activity. They also preceded changes later found by X-ray or isotopic techniques. The results suggest that the RIA of PAP is a reliable and sensitive method for the diagnosis and follow-up of therapy of human prostatic carcinoma.

Reference

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