

18. Diagnosis of prostate cancer using a radioimmunoassay for prostatic acid phosphatase in serum, O.A. LEA and P.Å. HØISAETER, Hormone Laboratory and Department of Surgery, University of Bergen, Norway

Tartrate-inhibited acid phosphatase has been isolated from human prostatic tissue and a specific antiserum obtained following immunization of rabbits. A double antibody radioimmunoassay has been designed which employs the primary antiserum in a final dilution of 1:100,000 and uses a second antibody covalently coupled to a solid carrier. An assay can be completed in only 24 h.

The assay appears to be specific for prostatic acid phosphatase (PAP). Sera from women and healthy men did not contain significant amounts of immunoreactive PAP. In a double-blind study including 30 patients treated for prostatic cancer in various stages, elevated values were found in 53%. Only 2 patients (6%) were detected with the standard enzymatic method. Significant blood levels of PAP were found in 25% of patients with stage 1 carcinoma and in 50% of those with stage 2. 27 patients with testicular cancer showed normal values.

These preliminary results indicate that the radioimmunoassay of prostatic acid phosphatase in serum represents a significant improvement in the diagnosis of prostatic cancer.

19. Endocrine treatment of prostatic disease, H. BECKER, Clinic of Urology, University of Hamburg, Germany

The observation that prostatic glands are stimulated by androgens and that withdrawal of these hormones causes atrophy of the prostate led to the introduction of endocrine treatment in prostatic cancer. Huggins and Hodges were the first to perform this type of treatment in 1941 and the principle of this therapy has been retained to the present in several variations. Bilateral orchidectomy is the surest way to reduce the testosterone levels in serum without severe side effects. Estrogen treatment has the same effect, but high doses favour cardiovascular diseases, as could be demonstrated by the Vacuug study. Antiandrogens act on the peripheral cell and have also been introduced - mainly as cyproterone acetate - for the therapy of prostatic cancer. All these various treatments do not totally remove the androgens from the serum. Testosterone levels between 0.3 and 0.6 µg/l correspond well with levels found in women. Adrenalectomy and corticosteroid therapy may lead to a further reduction in serum androgens. Pituitary ablation has the same effect. It has been suggested that prolactin acts synergistically with testosterone at the cellular level in the prostate. Therefore anti-prolactin therapy with lisuride hydrogen maleate was performed in patients with prostatic cancer and increased prolactin levels, where a tumour progression after a time of remission was present. This drug led to a decrease of the prolactin serum levels, how-

ever a remission of the tumour growth did not occur.

Different contents of receptor proteins in the various differentiated types of prostatic cancer cells may explain the different response of the tumours to the endocrine therapy. Krieg et al. (1) demonstrated e.g. a higher receptor protein content in cribriform and poorly differentiated compared to well differentiated tumours.

Endocrine treatment is very effective in prostatic cancer but its definite role still remains open. Further studies are necessary to compare endocrine with other treatment forms e.g. radio- and chemotherapy.

#### Reference

1. Krieg M., Grobe I., Voigt K.D., Altenähr E. and Klosterhalfen H.: Human prostatic carcinoma: significant differences in its androgen binding and metabolism compared to the human benign prostatic hypertrophy. *Acta endocr., Kbh.* 88 (1978) 397-407.
20. Percutaneous 17β-estradiol in the treatment of prostatic cancer, A. STEG, G. BENOIT and A. LIMOUZIN-LAMOTTE, Clinique Urologique de l'Hôpital Cochin, 27 Rue du Faubourg St Jacques, 75014 Paris

A natural estrogen, 17β-estradiol was given percutaneously at a dose of 600 µg/day to 21 patients with untreated prostatic cancer.

The follow-up lasted 1 year, and there were no ischaemic or embolic complications.

The follow-up at 3 months demonstrated satisfactory plasma concentration of the estrogen, a drop in plasma testosterone to 1 ng/ml, (the same levels as with 3 mg of diethyl stilboestrol) and a decrease in hypophyseal secretion as shown by lower FSH and LH levels.

Triglycerides, and VLDL (very low density lipoproteins) considered to be good indicators of cardiovascular risk were statistically unchanged.

This preliminary study prompted us to compare the effects of percutaneous natural estrogens versus oral synthetic estrogens which, as shown by the Veterans Administrations Cooperative Group may cause ischaemic and embolic complications.

#### OVARIAN FUNCTION AND DISEASE

21. Normal ovarian function, G.T. ROSS, The Clinical Center, National Institutes of Health, Public Health Service, Department of Health, Education, and Welfare, U.S.A.

Gametogenesis - the production of an ovum -, and steroidogenesis - the production of sufficient sex steroid hormones to insure initiation and early maintenance of pregnancy, should fertilization occur - are the results of normal cyclic ovarian function. In a spontaneous ovulatory menstrual cycle in a normal woman, ovulation occurs in only one of