Uro 01

SPECIFIC, AQUIRED CHROMOSOME ABERRATION IN HUMAN RENAL CELL CARCINOMA

G. Kovacs

Some types of human neoplasia are associated with specific, consistent chromosome aberrations (J.J.Yunis, Science 221,227,1983). Recently, a constitutional reciprocal translocation of 3;8 was described in a family with renal cell carcinoma (RCC)(A.J.Cohen et al., New Engl. J. Med. 301,592,1979) and a t(3;11) was found in tumor cells from 4 patients with normal constitutional karyotype in a case of family RCC (S.Pathak et al., Science 217,939,1982). Using G-banding technique, the chromosomes were studied in short term cultures of 16 primary human RCCs. Most of the RCCs examined in this study showed an interstitial deletion of a nearly identical segment of 3p or a translocation of 1q or 5q to the short arm of chromosome 3 with the breakpoint 3p14 or loss of one of the two homologous chromosomes 3. In two pseudodiploid RCCs the 3p deletion was found as the only karyological change. The shortest region overlap analysis localised a consistent change on a small area of 3p14-23. To define the constitutional chromosome pattern, peripheral blood lymphocytes in seven of the RCC patients were analysed with high-resolution chromosome banding. No aberrations were found.

Thus, it seems very convincing, that the deletion of the segment 3p14-23 is an aquired, tumor specific chromosome aberration and perhaps the first visible cytogenetic event in the clonal evolution of RCCs. This suggests, that the loss of gene(s), perhaps antioncogenes localised in this region may play a key role in allowing precursor cells of RCC to escape from differentation and growth control.

Pathologisches Institut der Medizinischen Hochschule Hannover, Konstanty-Gutschow-Str. 8, D-3000 Hannover 61

Uro 02

THE TRANSPLANTABLE ADRENOCORTICAL CARCINOMA OF THE RAT - SNELL 494 - FOLLOWING TREATMENT WITH OP-DDD AND CYCLOPHOSPHAMIDE

R. Krüger, K.H. Voigt and G. Dhom

There are no morphologic findings of adrenocortically and/or cytostatically treated human adrenocortical carcinomas up to the present. The transplantable adrenocortical carcinoma of rat SNELL 494 represents an experimental in vivo therapy model. Under op-DDD (900 mg/kg body weight) from 14th to 28th day following tumor transplantation, carcinoma weights are 30% lower than those of controls. Index of tumor necrosis under op-DDD increases to 51% (34% spontaneous necrosis in controls). Ultrastructurally, mitochondria of tumor cells show alterations as form variants, release of inner structure, and densification or decay of membranes. Nuclear changes cannot be seen. Under Endoxan (100 mg/kg body weight) from 14th to 28th day following transplantation, the tumors weigh only a third of those of controls. Ultrastructurally, alteration of cellular nuclei showing chromatin clumpings or water deposits with rupture of cellular and nuclear membrane is conspicuous. The index of tumor necrosis increases from 34% in controls to 79% accordingly. The findings reveal that the most efficient therapy for adrenocortical carcinoma in rats is a combined adrenostatical and cytostatical treatment which has been applied in man in only a few cases up to now.

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Pathologisches Institut am Städt. Krankenhaus Kemperhof, D-5400 Koblenz

Uro 03

COMPARISON OF MORPHOLOGY AND CLINICAL DATA OF RENAL ADENOCARCINOMA AND VENOUS TUMOR THROMBI

J. Vogel, D. Molitor, R. Leyendecker

To inquire the prognostic significane of tumor thrombi in the renal vein (20 case) and inferior vena cava (4 case), 24 renal adenocarcinoma and their tumor thrombi were histologically analyzed. Starting point of the investigation was the thesis of Skinner et al., the invasion into the renal vein had no negative influence on the prognosis.

Composition and surface of the tumor thrombi were considered in particular, their relation to the vessel wall and the condition of the wall of the vein. Grading of tumor and thrombus were compared. Tumor thrombi of G 1 and G 2 carcinoma mainly consist of tumor tissue, a small part show mixed thrombi consisting of tumor tissue and blood. Tumor tissue in the renal vein and the inferior vena cava show no difference in its histological formation. So called mixed tumor thrombi are frequently formed in patients with metastases. Mixed thrombi regularly have an irregular and partly non-endothelized,focal necrotic surface. A metastation from tumor thrombi with such a surface is conceivable. Often the surface of the thrombi new endothelized. Renal adenocarcinoma with a tumor thrombus in the renal vein is found in all stages of malignancy. A greater part of tumors with a tumor thrombus in the renal vein concerns the moderate grade of malignancy. Patients with a tumor thrombus in the renal vein do not show a higher rate of metastatic spread compared to the complete collective of renal adenocarcinoma. A tumor thrombus in the inferior vena cava leads to a 50% higher rate of metastatic spread, 45% of the cases observed did not show distant metastases. The endothelization of the free surface of the tumor thrombus apparently seems to prevent metastatic spread.

Pathologisches Institut und Urologische Klinik der Universität,Sigmund-Freud-Straße 25, Postfach, 5300 Bonn 1 (Venusberg)

Uro 04

NEW IMAGING SYSTEM IN THE DIAGNOSIS OF MALIGNANT TUMORS OF THE RETROPERITONEUM AND THE SMALL PELVIS

H.Hötzinger, K.Pfändner a.G., H.Zilch, T.Auberger a.G., H.Becker a.G., M.Obletter a.G., U.Rohde, A.Breit

Conventional radiologic procedures only allow insufficient information of malignant tumors of the retroperitoneum and the small pelvis. Direct visualization is possible since the establishment of new imaging systems.

A series of malignant tumors of the kidneys, the retroperitoneum, the uterus, the ovaries, the prostate and the bladder is shown to compare the diagnostic possibilities of ultrasound, CT and NMR. The results of the three methods are demonstrated and put into correlation with macroscopic slices of the operated specimen. Concerning the aspects of tissue differentation and tumorr extension Ultrasound anables the examiner to put sections in every direction which allow in a lot of cases an excellent anatomical overview. Cystic and solide tissue can be easily differentiated. If the tumor respects the borders of the organ, malignant tissue can often not be differentiated from normal structures. Not seldom artefacts disturb the examination.

CT delivers transversal sections independent of the skill of the examiner. In case of huge tumor masses it is difficult to establish the originating organ. Tumors with extension over the borders are easily detectable whereas in cases which respect the normal outer contour diagnosis can be difficult.

NMR allows to do sections in every direction with the possibility to produce T1- and T2 weighted sequences.

Sensivity and specifity of the examination depend upon the concerning organ. The results of CT are better than those of Ultrasound. Our experience with MR is yet limited, but characteristic T1- and T2 values are difficult to establish because of inhomogeneous tumor tissue.

Therefore imaging systems cannot replace histologic diagnosis. Nevertheless especially the combination of Ultrasound, CT and MR gives important hints for possible malignancies and allows a sufficient visualization of the of the borders of the tumor in connection to the surrounding tissue for therapy planning.

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