Symposium no. 11: New Approaches to Cancer Diagnosis and Management

11.007

IMMUNOHISTOCHEMICAL DETECTION OF NUCLEAR MATRIX PROTEINS IN HUMAN EPITHELIAL TUMORS. P.G. Betta, G. Bottero*, M. Pavesi, M. Pastormerlo. Service of Pathological Anatomy, "Santo Spirito" Hospital. Casale Monferrato. *Division of Radiotherapy. City Hospital. Alessandria. Italy.

The nuclear matrix (NM) is a 3-dimensional structure supporting the chromatin in the nucleus of mammalian cells. In order to study expression of NM proteins (NMP), frozen sections from 10 human breast carcinomas, 10 benign breast lesions and 10 carcinomas from other body sites were evaluated by immunohistochemistry using a MAb (NM-200.4) raised against the whole purified NM from T47D breast carcinoma cell line (Matritech Inc., Cambridge, MA).

A strong nuclear reactivity was found in epithelial cells in all the carcinomas and some of the benign lesions (fibroadenoma and cystic disease). A weakly positive staining was also present in normal breast tissue. Non-mammary carcinomas exhibited a variably positive immunoreactivity. These preliminary findings point to a preferential expression of NMP by cancer cells.

11.008

EARLY DIAGNOSIS OF PROSTATIC CANCER BY CULTURE OF TUMOR CELLS HARVESTED BY PROSTATIC MASSAGE
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Prostatic cancer (PC) is diagnosed at very late stage in most cases, so that therapy is frequently ineffective. A valid method for early diagnosis of PC is desirable. We attempted to grow the epithelial cells collected from prostatic fluid after rectal prostatic massage (Eur. Urol. 14, 474-476, 1988) and confirmed that samples from patients already diagnosed by needle biopsy as carrying PC were able to show in vitro in two weeks parameters depending on their neoplastic and differentiation features. The same has been applied also to non biopsied cases. We report the updated and statistically analyzed series of data (174 patients). This new approach may represent a very useful test for early diagnosis of the neoplasm, being non-invasive and suitable for a mass screening of the disease.

11.009

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USE OF IL-2 GENE TRANSFER IN LOCAL IMMUNOTHERAPY OF CANCER.

Insertion of functional interleukin-2 (IL-2) gene into a plasmacytoma cell line X63-Ag 8.653 substantially reduced tumorigenicity of the resulting cloned cells, designated as X63-m-IL-2. Peritumoral administration of the X63-m-IL-2 cells, producing constitutively IL-2, resulted in regressions of established X63-Ag8.653 plasmacytomas growing in peritoneal cavity of syngeneic mice. In vitro activation of BALB/c spleen cells by co-culture with X63-m-IL-2 cells or their supernatants gave rise to cytotoxic lymphocytes with lymphokine-activated killer (LAK) activity. In contrast, peritumoral administration of X63-Ag8.653 cells carrying an inserted interleukin-4 gene did not result in therapeutic effect.

11.010

Utilization of Lymphoid Cells with Inserted IL-2 Gene for Immunotherapy of Cancer.

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Utilization of IL-2 gene transfer in local immunotherapy of cancer has been demonstrated. Peritumoral administration of lymphoid cells with inserted IL-2 gene producing constitutively large quantities of IL-2 mediated regressions of established X63-Ag8.653 plasmacytomas growing in peritoneal cavity of syngeneic mice. In vitro activation of spleen cells by co-cultivation with IL-2 cDNA-transformed cells or by IL-2 produced by the IL-2 cDNA-transformed cells gave rise to LAK cells cytotoxic for the X63-Ag8.653 plasmacytoma. In contrast,peritumoral administration of IL-4 cDNA-transformed lymphoid cells could not secure significant therapeutic results. Moreover,admixture of the IL-4-producing cells substantially diminished the anti-tumour effect of IL-2-producing cells.

11.011

INTEGRIN EXPRESSION IN THE NEOPLASTIC PROGRESSION OF CERVICAL EPITHELIUM.

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Integrins play an important role in the organization of squamous epithelial. We evaluated by immunohistochemistry with a monoclonal antibody specific for the human β4 chain (MAb 439-9B), the expression of integrin α6β4 in 26 biopsy samples representative of the neoplastic progression in cervical squamous epithelium. The samples were also tested for binding to the M.Pomifera lectin, which recognizes a carbohydrate with a distribution similar to the integrin adhesion molecules. In normal epithelium the β4 chain was expressed in the basal layer, whereas M. Pomifera lectin was bound to parabasal cells. No alterations in this distribution were observed in cervical intraepithelial neoplasia I and II. Koilocytotic cells bound strongly M. Pomifera lectin, but did not express the β4 chain. Marked β4 expression and M. Pomifera lectin binding were observed in CIN 3 III and in invasive carcinoma. β4 expression and lectin binding were enhanced in poorly cohesive superficial areas. These observations suggested that alterations in the expression of integrins are associated with transformation in cervical epithelium.

11.012

INTRAVASCULAR BRACHYTHERAPY FOR PARASTERNAL LYMPH NODES IN MAMMARY CANCER

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The Brasfield & Hendschke technique for intravascular brachytherapy of the parasternal lymph nodes is used for breast cancer patients. Plastic tube implantation is performed at the time of mastectomy. A minimal dose of 70-80 Gy is achieved in a cylinder 1.0-1.5 cm in diameter and 40 Gy in a 2.0 cm cylinder. Thus the minimal dose is given to the parasternal lymph chains. The steep dose gradient spares the lungs, sternum and the bone marrow. An electron-beam radiotherapy is performed postoperatively to the rest of the target volume. No complications were observed with the 15 patients subjected to this treatment.