Symposium no. 8: Cancer Risk Assessment

8.013

INHIBITION OF THE FORMATION OF dG-N_2-AAF-DNA AND BPDE-DNA ADDUCTS IN RATS BY *N*-ACETYLCYSTEINE

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Dietary 2-acetylaminofluorene (AAF) produced the formation of dG-N_2-AAF-DNA adducts in the liver of Wistar rats, as assessed by ^{32}P postlabeling technique. This adduct was considerably decreased by co-administration of the thiol *N*-acetylcysteine (NAC) with the diet. Benzo(a)pyrene diolepoxide (BPDE)-DNA adducts, as detected by synchronous fluorescence spectrophotometry (SFS), were produced by i.t. instillations of BP in both lung and liver of Sprague-Dawley rats. Administration of NAC by gavage totally inhibited BPDE-DNA adducts in the liver and significantly reduced those in the lung. In the same animals NAC prevented BP-induced cytogenetic damage in pulmonary alveolar macrophages.
Passive exposure of rats to cigarette smoke resulted in a weak yet consistent SFS signal in lung DNA, which was not detected in animals pretreated with NAC by gavage.

8.014

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Changes of the immunological status of males under the influence of malignant process and harmful industrial factors

123 persons have been tested by classical immunological tests: among them 64 men ill with malignant tumours of larynx and hypopharynx, 44 men - donors and 15 men working under the impact of harmful industrial factors (The age of investigated persons was about 35 - 65 years).

The results of the ivestigations have shown that under the impact of oncological pathology as well as under the action of harmful industrial factors numerous immunological indicators are being supressed (T_1-, T_4-, T_8-, blasts, phagocytoses). The increase of the per cent (%) ratio of T_8-lymphocytes as compared to the control group of male donors is also a fact to the effect. Yet the immunological homeostasis was supported by other indicators. They either increased or remained the same as in the control groups (the amount of leukocytes, the index of leukocytes migration, the concentration of IgG, IgA, IgM and the level of normal antibodies in blood serum for the Common enterobacterial antigen).

8.015

HUMAN LUNG ADENOCARCINOMA: ALTERATIONS OF MUSCARINIC CHOLINERGIC AND β-ADRENERGIC RECEPTORS

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In the present study β-adrenergic and muscarinic receptors have been investigated in human lung parenchyma, obtained at the resection of tuberculoma patients within the normal tissues limits and the resection of adenocarcinoma and chronic pneumonia patients. The Scatchard analysis indicated that the number of binding sites of muscarinic antagonist 3H-quinuclidinyl benzylate significantly increases in cancer and doesn't change in chronic pneumonia lung parenchyma in comparison with the normal tissue; the number of binding sites of β-adrenergic ligand 3H-dihydroalprenolol decreases both in cancer (B_{max}=84±14fmol/mg) and chronic pneumonia (B_{max}=113±10 fmol/mg) parenchyma, (in the normal tissue B_{max}=456±74 fmol/mg). The results obtained suggest the important role of β-adrenergic receptors in the lung adenocarcinima formation in pneumonia patients.

8.016

Lung cancer and passive smoking: an exercise of risk assessment using matematical model

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In the IARC Monograph on Tobacco Smoking (Vol.38), results of nine epidemiological investigations with data on dose-response relationships between the amount smoked and risk of lung cancer are reported. We have calculated the dose-response curves for all the data pooled, according to the two stage model suggested by Moolgavkar et al. and to the multistage model by Armitage and Doll. Preliminary results indicate Relative Risks respectively of 1.7 for two stage and 1.6 for multistage models for the exposure to one cigarette equivalent.

8.017

Hazard evaluation: data banks and data bases of genotoxicity and carcinogenicity.

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Original pubblications for genotoxicity and carcinogenicity approach several thousand. Data banks and data bases in this sector can be of help to retrieve data on toxicity studies, correlation studies, structure-activity relationship studies and other large quantities of data. Factual data banks provide elaborate information (i.e. online: RTECS, ECDIN, CCRIS HSDB, etc.; in house: IARC, BLDB, USEPA, EPA, etc.). Bibliographic data bases are necessary to complete the former mentioned data banks and inform the user of pertinent records and provide a summary of their content (Medline, Toxall, Chemical Abstract, Pollution, Environline, etc.).

8.018

BREAST CYSTS ANTITRYPTIC ACTIVITY

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Proteolytic enzymes play a role in the expression of the malignant phenotype including tumorigenesis, loss of growth regulation and invasiveness. Consistent with this hypothesis, protease inhibitors have been shown to have strong anticarcinogenic activity. *α1ACT* (α1antichymotrypsin) is a glycoprotein of the serine protease family, preventing tissue damage by lysosomal enzymes. Precise role of *α1ACT* has not been clearly defined. Several studies have demonstrated that exists a higher risk for bearers of breast gross cystic disease of developing mammary adenocarcinoma. The analyses of breast cyst fluid could well provide information about environment of the breast tissue regarding focal lesions prone to malignant transformation.Data analyses show that *α1ACT* is found at higher concentrations than would be expected by passive diffusion from serum. The double immunoelectrophoretic peak suggested that it is probably not actively secreted into breast cyst fluid but may be selectively retained after complexing that causes a decrease in its antigenicity. Studies on the role of proteolytic attack-defense of *α1ACT* are in progress.