Symposium no. 6: Environmental Carcinogens and Relevance to Humans

6.013

ASBESTOS: A FOREIGN-BODY SARCOMA-INDUCER?

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Implanted unabsorbable films cause sarcoma in the rodent in proportion to their surface area. Asbestos is a particulate unabsorbable material which also causes sarcoma. If the mechanism is similar, deposition of asbestos on sarcoma-inducing film should increase its power. In two experiments, 0.1 micron pore nitrocellulose disks 25mm diameter were implanted subcutaneously in groups of 45 female rats 3-4 months old. In the first experiment 2.3 mg crocidolite asbestos was added in 16% gelatine to one group of filters, gelatine only in the control group. Asbestos produced 25 tumours, saline 17 ($p<0.2$). In the second experiment two other groups were added, one getting 4.6mg asbestos on the filter, and the other 4.6 mg asbestos without the filter. The film groups had similar tumour incidence on the films. Asbestos by itself produced no tumour at the injection site, but had twice as many tumours elsewhere. The issue remains unresolved

Group	Mice	Weeks	Sarc	Wks/s	Other tumours
Asbestos 2.3mg	44	2316	25	93	12
Saline	42	2475	17	145	15
Asbestos 4.6mg	34	1603	23	70	9
" 2.3	41	2122	28	76	8
Saline	42	2024	27	75	12
Asbestos alone	45	3132	0	—	22

6.014

Mesothelioma and enviromental asbestos exposure in Casale Monferrato ;
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Incidence of pleural mesothelioma (Histologically diagnosed) was estimated in Casale Monferrato, where the largest Italian asbestos-cement plant operated in 1907-85. In a previous study (1)workers showed a large increase in mortality from lung cancer, pleural cancer and asbestosis.Histological diagnoses of pleural mesothelioma have been searched for in the local hospital and four other large hospitals. Occupational exposure of cases was identified according to a linkage with the rosterof employees.in 1980-9 a mesothelioma was histologically diagnosed to 49 residents in Casale Monferrato with no occupational exposure in the asbestos cement and 23 with such exposure. corresponding figures were 4 vs.3 in nearby villages and 7 vs. 3 in the rest of USL. Incidence rates (x 100.000, age adj.) for non-occupationally exposed were 11.4 (males) and 10.2 (females) in Casale, 5.1 and 0 (no cases) in nearby villages, 1.5 and 0.6 in the rest of USL. Rates reported by the Cancer registry of Varese in 1976-87 were 1.0 (men) and 0.3 (women).Our data show an excess of pleural mesothelioma, not attributable to occupational exposure in the asbestos-cement plant.

6.015

SOME ACUTE GLOBAL PROBLEMS OF HUMAN ENVIRONMENT RELATED TO THE ENDEMIC OCCURRENCE OF URINARY TRACT TUMORS IN SOME BALKAN COUNTRIES

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In some countries of the world intense wood exploitation induced global degradation of human environment both on the Earth and in the atmosphere.CO2 absorption by forests and other plants is reduced and CO2 level in the atmospere has been increased, as well.
The Danube,Nile,Indes,Ganges,Amur,Jangze-Kiang, Hoang-Ho and many other rivers carry off each year countless tons of eroded soil depositing it into seas and oceans.Having in mind sea level rise,this fact is to be considered first. Due to the intense erosive processes in some areas of the Balkan Peninsula,potable water is temporarily polluted by toxic silica and blastomogenic metals which are responsible for the endemic occurrence of urinary tract malignancies in population living in flooded low-lands and in settlements along the rivers.

6.016

Lung Cancer Risk among Refractory Brick Workers Exposed to Crystalline Silica: A Retrospective Cohort Study.

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A retrospective cohort study conducted among 1022 refractory brick workers exposed to cristalline silica revealed excesses of mortality from lung cancer (LC) and nonmalignant respiratory diseases (RD). The risks of LC (SMR = 1.77) and RD (SMR=3.15) were significantly elevated ($P < .05$) in workers first employed ≤ 1957 who are likely to have shared the highest exposure to silica dust. Workers with >19 years of exposure in the plant had particularly increased risks for LC (SMR = 2.01) and RD (SMR = 3.89). Mortality from these causes increased with years since first employment and decreased with age at first employment. Adjustment for smoking habits along with the lack of excess mortality from cardiovascular diseases and emphysema, ruled out a possible effect of smoking on the increased risks for LC and RD. These findings add further evidence to the suggested causal link between exposure to crystalline silica and lung cancer risk.

6.017

ANIMAL TUMOUR REGISTRY: SIX YEARS OF EXPERIENCE.

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An important activity of the National Reference Center for Veterinary and Comparative Oncology concerns the Animal Tumour Registry, a collaborative programme IST-IZS established in 1985 in order to study environmental factors likely to be involved in the insurgence and progression of neoplastic diseases. The Registry uses a network of veterinary clinics instructed to provide proper anamnestic information on the animal patients, and the material is collected and computerized according to the WHO international classification of tumours in domestic animals. In Liguria, where the population size of dogs is controlled by the canine census, it is possible to perform accurate epidemiological investigations in this species according to sex, breed, etc. Taking advantage of the coding system ICD-O - SNVDO, comparative approaches on the occurrence of tumours in both humans and animals are now in progress (MinSan. P.F. '87).

6.018

ROLE OF ENVIRONMENTAL FACTORS IN LUNG CANCER ETIOLOGY IN ITALY: AN ECOLOGIC ANALYSIS

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A factor analysis was performed on the data of 92 italian provinces. Then, a simple correlation was performed between factors and lung neoplasm age-standardized mortality rates. Industrial activity and cigarette smoking were the factors most able to explain the observed variability in geographical distribution of lung cancer mortality (respectively more than 23% and 15% for males and 18% and 22% for females). Nevertheless, about 6-7% variability in both sexes was associated with the factor summarizing the total fuel consumption. This result suggests that air pollution in cojunction with smoking habits might account for 6-7% of lung cancer mortality in Italy. Finally about 13% for males and 8% for females were the lung cancer rates explained by the factor summarizing by socioeconomic variables.