Parallel Symposium No. 6

Environmental Carcinogens and Relevance to Humans

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PS 6.1

USES OF EPIDEMIOLOGY FOR CANCER PREVENTION
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It is a customary view that epidemiology, by identifying causal (or preventive) factors of cancer, leads naturally to prevention. It is, however, also a fact that aetiological discoveries may not at all be followed by adequate preventive actions. The question then arises of which specific type of work can be carried out by research epidemiologists (as contrasted with pubblic health officals, decision markers, etc.) to increase the likelihood that aetiological knowledge translates into prevention. A number of suggestions and examples will be outlined, pertaining to envirnmental and occupational hazards, of studies aimed at sustaining preventive efforts, placing them against the more general background of evolution of research in cancer epidemiology, in turn influenced by the remarkable developments in molecular biology and genetics.

PS 6.2

"Tobacco smoke". Carlos A. González. Servei d'Epidemiologia. Hospital de Mataró. Barcelona.

Cigarette smoke contains many chemical know to produce cancer in animals and/or humans. The chemical composition of smoke depends on the type of tobacco, the cigarette design and the smoking pattern.

We review briefly the evidences on the causal relationship between smoking and the occurrence of cancer, but the major part of the presentation is concentrated on a description of the epidemiological evidence ot the role of age at start, the effect of duration and cessation of smoking, the role of the type of tobacco and the cigarette composition and the interaction with other exposures.

We also review current evidence for the carcinogenecity of passive exposure to environmental tobacco smoke.

PS 6.3

DIET
Marianne Ewertz, Danish Cancer Society, Danish Cancer Registry, Copenhagen

There are many ways in which diet can influence the development of cancer. The simplest and most obvious is the ingestion of direct-acting carcinogens or their precursors, e.g. bracken fern, mycotoxins. However, the most important dietary factors are related to macronutrients (protein, fat, carbohydrate) and micronutrients, e.g. vitamins and minerals. Despite intense research efforts over the past 20 years, there has been little progress in understanding the role of diet in the aetiology of numerically important cancers such as colon and breast cancer. Future research should focus on obtaining unbiased and precise estimates of diet, sufficient statistical power, cohort or intervention approaches, and the collaboration between epidemiology and laboratory science should be strengthened.

PS 6.4

Paolo Vineis

OCCUPATIONAL CANCER

Chemicals in occupational settings have been among the first human carcinogens to be identified, because of the unusual levels of exposure and homogeneity of the exposed populations. They have also been among the first to be regulated by national and international agencies. Exposure to them raises very special ethical and political issues, due to inequality in the distribution of occupational hazards in the population. From the methodological point of view, the identification of the carcinogenic properties of some well-known carcinogens such as asbestos, aromatic amines or heavy metals has been facilitated by the high levels of exposure in the past and by the availability of large populations exposed to one or a limited number of chemicals. Nowadays we face a very different picture : 1) workers are often exposed to large numbers of chemicals, and also *to complex mixtures such as engine exhausts; 2) exposure levels* have decreased, at least in the Western countries (i.e. those where most epidemiological research is conducted); and 3) workers are more mobile, with exposures coming from several different sources. In this changing context, epidemiological methods must become more and more sophisticated.