Guest Editorial  The Environment and Cancer

Cancer induced by chemical and physical agents is a problem of major proportions as demonstrated by the high incidence of cancer among cigarette smokers and those exposed to various carcinogenic materials and radiation. During the last several decades, the extent of exposure to many agents has greatly increased and many hitherto unknown or uncommon substances have been added to our environment. Hopefully, most of these agents will prove to be innocuous but some may be carcinogenic at levels of occupational exposure or heavy consumer use and perhaps still others will be dangerous even at relatively low levels.

The American Cancer Society, in collaboration with the Environmental Sciences Laboratory of the Mount Sinai School of Medicine, New York City, and with the cooperation of both labor and industry, is presently engaged in an extensive environmental cancer research project. Death rates from cancer sites are being studied in groups of workers who have had prolonged and relatively heavy exposure to specific substances. Priority is placed on studying those substances under suspicion as possible carcinogens or cocarcinogens with special attention to agents to which the public is exposed. If there is no elevation in cancer death rates for a particular substance among those exposed for over 20 years, that substance can be eliminated from the list of suspects. If the death rates are elevated, steps are taken to reduce the risk without causing the workers to lose their jobs. Engineering and chemical studies are also being conducted to determine levels of exposure in the working environment.

For example, one study in our program revealed that asbestos insulation workers have an extremely high incidence of bronchogenic carcinoma, as well as mesothelioma and asbestosis. Means of reducing exposure to asbestos dust were developed. Another related study is currently in progress to determine whether there is any risk to the general public from asbestos fibers present in low concentration in urban air.

Other groups under study include printing pressmen, exposed to carbon black suspended in air, ink dyes and solvents, etc; roofing workers, heavily exposed to benzodipyrene in vapor from molten pitch; typographers, exposed to heavy metal fumes and ink dyes; cotton mill workers exposed to cotton fibers and dyes; tunnel workers, exposed to hard rock dust. Further studies of other groups such as chemical and oil workers, painters and paper makers are also being planned.

By no means can all environmental factors be investigated by studying occupational groups. Furthermore, nonenvironmental factors such as heredity may interact with environmental factors to produce cancer. In 1959, American Cancer Society volunteers persuaded over 1,000,000 men and women to complete a questionnaire on such factors as family and disease history, physical complaints, habits, diet, breast feeding, age at first pregnancy, etc. The subjects answered three repeat questionnaires during the interval from 1959 through October, 1965. Tracing was resumed in 1971 and will continue for several more years to obtain more detailed information on various factors in relation to cancer; determine whether the reduction in tar and nicotine content of cigarette smoke has resulted in a reduction in the degree of association between cigarette smoking and death rates; and provide control data to be used in conjunction with studies of occupational groups.

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