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Environmental mistakes: responsibilities, opportunities

by Irving J. Selikoff, M.D.

Director, Environmental Sciences Laboratory
Mt. Sinai School of Medicine, New York

Often a colleague will stop me in the hospital to ask, "Well, what's the carcinogen of the week?" The question suggests another question: "Is it better to know the causes of cancer, or not to know them?"

I believe knowledge can mean control of this disease.

We have entered an extraordinary new phase in the battle against cancer. We are now learning some of its causes. This creates new opportunities—and responsibilities: To control environmental exposures, and to help those already exposed and now at high risk of developing neoplasms.

Delayed Effects

Long incubation periods between exposure to carcinogens and subsequent tumors, obscured evidence of etiological relationships.

Many industrial employees began work with vinyl chloride at age 18; their liver angiosarcomas are seen today at age 40. The mild side-effects of thymus radiation used in the 40's gave no hint of the thyroid neoplasms that would occur in the 60's and 70's. We were not able to predict in the 1920's, and 30's and 40's what effects the dramatic increase in cigarette smoking would have today.

But the same delays between cause and effect that misled us may also now be turned to our advantage, for as we identify agents that can cause cancer, we also identify groups of people exposed to them years ago who are now predictably at high risk of developing future disease.

Help for Those at Risk

Can we find methods for earlier diagnosis and more effective treatment? Or must we wait until neoplasms appear?

The Public Health Service calculates that approximately 1,000,000 men and women are either currently employed or were formerly employed as "asbestos workers" from 1930 to about 1970. Of these perhaps 5 to 7 percent will develop mesothelioma. (In addition, 3 times as many will die of lung cancer.) This unhappy projection does not include people who were not "asbestos workers" but were significantly exposed to the mineral in shipyards, or in households contaminated by fibers brought home on clothes of an exposed worker.

Consider one small building trade union—the Insulation Workers. Although it has only 18,000 members, hardly a fortnight goes by without a death from mesothelioma among them.

The Next 30 Years

Must we expect 2,000 or more deaths each year from mesothelioma, well into the next century?

Maybe—but hopefully not. Intervention in prodromal (preliminary) stage mesothelioma may be possible. The answers may lie in the newly established Mesothelioma Therapy Research Program. This will explore research techniques for very early, preclinical diagnosis, allowing earlier and more promising preclinical treatment. It will evaluate new procedures to prevent and treat disease in asbestos-exposed individuals. Possibly the discoveries we make will have relevance beyond asbestos and mesotheliomas. Perhaps we may learn to blunt and amend nature's otherwise apparently inexorable law of cancer following carcinogenic exposure.

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