PUBLIC HEALTH

To Smoke or Not to Smoke

Evidence strongly supports the theory that lung cancer is linked to smoking, but some scientists believe more research must be done before definite conclusions can be drawn.

➤ THE AMERICAN CANCER SOCIETY's campaign against cigarette smoking because of its link to lung cancer is reinforced by a new pamphlet that answers point by point the arguments in opposition to its stand.

Following are the eight questions most frequently raised and the comments concerning them given in the booklet.

Cancer Cause Unknown

Q. The cause of cancer is unknown so how can one say that cigarette smoking causes lung cancer?

A. While it is true that the ultimate cause or causes of cancers are not known, it does not follow that contributory causes are without significance. For example, the role of excessive exposure to sunlight in the development of cancer of the skin is not disputed; nor is there doubt concerning the value of insulin for treatment of diabetes even though the cause of diabetes is still unknown. Likewise, many measures for the prevention of disease have been accepted and employed long before the cause of the disease was known: e.g., vaccination for smallpox, water purification for the prevention of cholera and typhoid fever; screening against mosquitoes to prevent malaria and yellow fever; use of citrus juices to prevent scurvy, etc.

Q. The evidence is only statistical and therefore inconclusive.

A. This argument is meaningless to anyone familiar with the scientific method because many conclusions in scientific work are based upon the analysis of data; that is, upon statistics. In fact, casual relationships in biological phenomena must of necessity be judged on the basis of high correlations and relevant information supporting the interpretation of such correlations.

Concerning this Dr. Warren Weaver, president of the Alfred P. Sloan Foundation and former vice president of natural and medical sciences of the Rockefeller Foundation, wrote: "The automatic discarding of evidence because it is statistical is unscientific and wholly unwarranted. Statistical evidence is, in essentially all non-trivial cases, the only sort of evidence we can possibly have.

"Two recent examples of conclusions based entirely upon human statistical observations are the relation of the drug thalidomide taken by women during pregnancy to the birth of deformed babies, and the risk of developing paralysis—estimated as less than one in 1.000,000—from the use of Type III oral poliomyelitis vaccine."

Q. There may be a genetic factor which causes a person to smoke and also causes him to develop lung cancer.

A. This is an hypothesis without supporting evidence and one that is inconsistent with established facts. For example, such an hypothesis cannot account for the increase in lung cancer in recent years; for the parallelism between the increase in lung cancer and the increase in cigarette smoking; for the much higher death rates among cigarette smokers than among cigar or pipe smokers; nor for the reduction in lung cancer deaths among former cigarette smokers who have discontinued the habit.

Q. The statistical evidence is not supported by animal experimentation.

A. As Sir Robert Platt, president of the Royal College of Physicians of London, has said, the conclusion that cigarette smoking causes lung cancer is based upon extensive animal experimentation, with the best possible animal for such an experiment: namely, man. However, those who make this statement doubtless refer to experiments on laboratory animals. . . . Lung cancer has not been produced in animals by exposing them to cigarette smoke.

This may well be because investigators have never been able to train animals to smoke cigarettes as man does in order to observe the effects of the inhalation of cigarette smoke over long periods of time. However, even if this were done and no lung cancers developed, it would not disprove the conclusion that cigarette smoking causes lung cancer in man, for it is well known that animals react differently to infectious agents, to toxins and to drugs.

For example, carbon tetrachloride produces many tumors in mice but none in rats; dimethylamino-azobenzene (butter yellow) produces cancer of the liver in rats but not in hamsters; the polyoma virus causes a wide variety of tumors in different animals; compounds of beryllium cause pulmonary cancer in certain animals but not in others and laboratory animals are not susceptible to various diseases of man, such as smallpox, typhoid fever, measles, etc.

Conclusions Unreasonable

Q. It is unreasonable to believe that cigarette smoking could cause lung cancer, cancer of the bladder, coronary thrombosis, chronic bronchitis, emphysema, etc.

A. To the uninformed this point may seem well taken but as every physician knows, few diseases or poisons affect only one system in the body. Typhoid fever and syphilis affect practically all body organs and systems; diphtheria toxin causes both paralysis and serious damage to heart muscles; and practically all chemical poisons have multiple effects on the body; e.g., phenol poisoning causes disturbances of the

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PUBLIC HEALTH

Tobacco Institute Replies

➤ THE TOBACCO INDUSTRY does not fully agree with the answers given to their arguments in the American Cancer Society's new pamphlet on cigarette smoking and cancer.

Commenting on the booklet, George V. Allen, president of the Tobacco Institute, Inc., in Washington, D. C., said: "There is dispute among scientists as to the causes of lung cancer. Many differing opinions exist. This booklet summarizes the views of the staff of the American Cancer Society, which have been expressed on many occasions in recent years, and are presumably well-known to the scientific community and the public. It is our belief that the answers to questions about diseases such as lung cancer will come through the research laboratory, not through booklets or campaigns for or against smoking."

The authors of the booklet purport to answer "point by point" the questions raised by those who do not accept their conclusions, Mr. Allen said. He believes the authors do an injustice to the many scientists, unconnected with the tobacco industry, who hold differing views and that they have omitted or oversimplified facts and theories that do not support their views. This booklet comes at a time when a committee of scientists appointed by the Surgeon General of the United States is conducting a review which, according to the Surgeon General, "will be concerned not only with tobacco but all other factors which may be involved," he said.

"We hope the Surgeon General's committee will provide a thorough review of what is known and what is not known. This type of approach seems more appropriate than another booklet restating fixed positions.

"Those of us who work with tobacco share with the millions who enjoy tobacco products a concern about questions relating to tobacco use and certain health problems, especially lung cancer," Mr. Allen said.

"We recognize that smoking is one of many factors being investigated by scientists throughout the world who are seeking to learn the causes of lung cancer. Many scientists believe that much more must be learned before it will be known whether any of the factors now under study has a role in causation and, if so, whether that role is direct or indirect, primary or incidental."