

Comments

To the Editor of *Cancer Research*:

In the March issue of *Cancer Research*, as the leading article, there was published a "Guest Editorial: Smoking and Lung Cancer." This was written by the Director of the Roscoe B. Jackson Memorial Laboratory, Dr. C. C. Little. A footnote gives the information that he is also the "Scientific Director, Scientific Advisory Board to the Tobacco Industry Research Committee." The opening sentence of this editorial is as follows: "In June, 1954, when the *first statistics** indicating an association between cigarette smoking and the incidence of lung cancer were presented, an extraordinarily interesting, if not unique, situation resulted."

Because of my particular interest in lung cancer and especially in its etiology for a period of more than twenty years (4, 14, 15) this editorial, written by one so eminent in the field of cancer research, naturally attracted my attention. I was greatly astonished, however, to find that the author of it has the opinion that "the first statistics indicating an association between cigarette smoking and the incidence of lung cancer" were presented as recently as June, 1954.

Actually in May, 1950, Dr. Ernest Wynder and I (17) published the first extensive statistics on this subject, and our article has been widely quoted in the world's literature. Again in 1951 we (18) published another statistical article dealing with this subject. Previous to our work a few smaller studies had been published. Between the study of Wynder and me in May, 1950, and the publication of Hammond and Horn (6), to which probably Dr. Little refers, there were no less than eleven published series of statistics (1-3, 5, 7-12, 16) from various European countries as well as the United States. More important, however, is the fact that all twelve of those studies, and some made more recently, gave results that were almost identical in indicating a strong statistical relationship between heavy cigarette smoking and the alarming increased incidence of lung cancer. Not a single statistical article has been published that shows any different results.

Briefly, what is the case today concerning a causal relationship between cigarette smoking and bronchiogenic carcinoma?

1. Every statistical study that has ever been

* Italics mine.

published on the subject presents strong evidence that a definite etiological relationship exists between heavy cigarette smoking and the production of primary bronchial carcinoma. There are now fourteen different studies of that kind. Not a single study shows any different result.

2. We (Wynder, Graham, and Croninger [19, 20]) have shown that cigarette smoke contains a carcinogenic factor or principle by the successful experimental production of cancer in several different strains of mice and recently (in as yet unpublished work) in rabbits by applying to them the tar obtained from the cigarette smoke by the method described by Wynder.

3. As far as I know nobody has ever made the claim that cigarette smoking is the only etiological factor in the production of bronchiogenic carcinoma.

4. The evidence already at hand for a causal relationship between heavy cigarette smoking and cancer of the lung is stronger than that for the efficacy of vaccination against smallpox, which is only statistical.

What stronger evidence is desired? Human experimentation is of course out of the question. Of how much value are the arguments that are being advanced in favor of occupational hazards as the explanation of the increase of lung cancer when the protagonists of that theory completely neglect the smoking habits of the workers involved? Should a heavy cigarette smoker who develops a cancer of his lung while working, for example, in an asbestos factory be considered to be a victim of asbestos or of cigarettes? When animals, for instance, rabbits, are placed in cages side by side for a period of 3 years and the only ones that get cancer are those that have been painted with the tar of cigarette smoke, is that not evidence that a carcinogenic factor is present in the cigarette tar? The animals have breathed the same atmosphere and have eaten the same food during the entire experiment. The only difference in the conditions to which they have been exposed is that one set has had applications of cigarette tar. Experiments based on the attempt to produce cancer of the bronchus in animals are for technical reasons very difficult to carry out. But why is it necessary to carry out such experiments? Isn't the evidence at hand sufficient to convince anybody with an open mind? Even if

such experiments were successful, would the doubters, the die-hards, and those who refuse to believe the evidence be convinced that cigarettes have anything to do with human lung cancer? I doubt it, because almost certainly some would still say, "Well, after all, the bronchial mucosa of an animal is not the same as that of the human."

It will be interesting to see if the Tobacco Industry Research Committee can produce any work that will refute the torrent of evidence from different parts of the world in favor of a definite etiological relationship between heavy cigarette smoking and cancer of the lung. Great Britain's Minister of Health (13) on March 5 of this year tersely expressed to the House of Commons the opinion now generally held in that country. He said, "What has been shown is that there is a causal connection between smoking and lung cancer—that we know."

Yours truly,

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To the Editor of *Cancer Research*:

Dr. Graham is quite right in calling attention to my error in referring to the statistical paper of Hammond and Horn as "the first statistics indicating an association between cigarette smoking and the incidence of lung cancer." I should have inserted, after the work "first," some such qualifying phrase as "widely publicized," or "presented by the American Cancer Society." It might be added that the fact that the American Cancer Society considered it expedient to conduct long-time and costly statistical studies on this subject indicated that the previous articles referred to by Dr. Graham had failed to convince the Governing Board of that Society.

As regards the causal relationship, there is, in spite of Dr. Graham's long-recognized conviction on this matter, a difference of opinion even among those familiar with statistical evidence. Many of these doubts are not published, but there is very clear evidence that they exist.

A number of individuals, myself included, do not wish to enter into a controversy, but prefer to wait for additional experimental evidence, either pro or con this hypothesis, which we believe the future will produce.

Dr. Graham's quotation from Great Britain's Minister of Health should, I feel, be supplemented by the conclusion of the Minister that in the face of all evidence he did not consider that the data justified an anti-tobacco campaign. A conclusion of that sort appears to me to have more significance than an isolated quotation.

There is one further very important statement made by Dr. Graham which shows an unfortunate failure on his part to understand the program of the Tobacco Industry Research Committee, and of its Scientific Advisory Board. The Tobacco Industry Research Committee conducts no re-