Occupations and Cigarette Smoking as Factors in Lung Cancer

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This four-year study offers additional evidence tending to connect heavy cigarette smoking with cancer. In addition, it lists several occupations that seem to have some etiological relationship to the disease. They need further study, as it is suggested.

✣ The sharp increase in lung cancer mortality constitutes one of the most spectacular disease phenomena of the past two decades. In the United States the age-adjusted mortality rate for lung cancer climbed from 2.7 per 100,000 population in 1930 to 11.0 in 1948, a more than fourfold increase. In at least one state, California, pulmonary cancer now accounts for more deaths than does pulmonary tuberculosis, and among males aged 45–64 it causes 4 per cent of all deaths.

Attempts to explain this rising mortality as spurious, e.g., as due to improved diagnosis of the disease, do not stand up. The lung cancer death rate—which unfortunately is still our best approximation of incidence rate — has increased two and a half times more rapidly among men than among women. One can hardly presume that physicians have applied diagnostic improvements so much more completely to men than to women. Likewise, the increasing proportion of lung cancer found as a cause of death among autopsies supports the conclusion that we are dealing with a real increase in the disease.[1]

Environmental changes appear to offer the best explanation for the phenomenon. Previously published studies have implicated cigarette smoking [2-5] and certain occupations [6] — especially those involving exposure to radioactive [7] and chromate ores [8] and asbestos [9]—in the causation of lung cancer. However, the number of persons known to have such occupational exposures in the United States is relatively small.

The present investigation was undertaken four years ago: (1) to determine whether any additional occupations might be involved in lung cancer and thus deserve intensive investigation, and (2) to obtain data on the role of tobacco usage in lung cancer.

Methodological Considerations

Definitive study of whether an occupation or cigarette smoking is a causative factor in lung cancer requires that the incidence rate for the exposed group be determined. This rate is then compared with that of a control population, the most acceptable control being all the rest of the population from which the

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