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Cancer and the Immigrant

Many workers have reported differences in age-standardized mortality rates for cancer at various sites between different countries and in different ethnic groups. However, lack of uniformity in standards of diagnosis and, sometimes, lack of agreement on diagnostic criteria have made precise comparisons from different parts of the world difficult or impossible. For this reason it is still not clear which of the differences are real, nor whether those which are real are determined by genetic or environmental factors. In this context P. E. Steiner¹ pointed to the advantages of studies on migrants (i.e., not nomads, but people who migrate from one area to another) in the following words: "Members of certain races have, however, unwittingly performed aetiological experiments on a large scale by migration from one environment to another." He went on to point out that, while the genetic characteristics of the migrant remain unchanged, some environmental factors such as climate, altitude, and air pollution change immediately, and others, such as cultural and culinary practices, change more gradually after migration.

Environmental factors have been thought to play a part in the causation of cancer at many sites in the body, but so far attempts to associate cancer of the oesophagus, stomach, or colon with particular environmental factors have provided only weak associations or given disappointingly inconclusive results. Thus the role of the 3,4-benzpyrene content of smoked foods in the causation of stomach cancer remains unproved. Similarly, the extensive studies in this country by Percy Stocks and his colleagues, recently reviewed in these columns,² have led only to the rather vague suggestion that cancer of the stomach is in some way related to the zinc/copper ratio in the soil where people live: no clear-cut environmentally determined mechanism has been pin-pointed. It is against this background that the recent collaborative study³ of J. Staszewski, of the Institute of Oncology, Gliwice, Poland, and W. Haenszel, at the National Cancer Institute in Washington, should be viewed.

The beginning of this study was in 1961, when Haenszel⁴ compared cancer mortality among white migrants from 12 foreign countries to different parts of the United States with cancer mortality among the general non-immigrant white population of the U.S.A. Some of the differences he observed were small and could be attributed to chance, but others, because of their magnitude and their consistency in migrants from the same ethnic group settling in different parts of the United States, demanded further study. In particular, differences between some migrant groups and native-born whites in mortality from cancer of the oesophagus, stomach, larynx, and lung are of particular interest.

Mortality from cancer of the oesophagus was substantially higher in all foreign-born white males than in their native-born peers, the highest rates occurring in migrants from Poland, Czechoslovakia, and Ireland. High rates were also seen in women migrants from Czechoslovakia,

Ireland, and Russia. The high rate in Russian women might have been genetically determined, since many of the migrants from this country were Jewish, and the findings of other workers have indicated that Jewish women may be relatively susceptible to the disease.^{5,6} Haenszel suggested that a high consumption of alcohol may explain the raised incidence of cancer of the oesophagus in migrants from Ireland. Retrospective studies on cases and controls support this theory.⁷ Moreover, the distribution by site of the cancers prevalent among the Irish (notably buccal cavity, oesophagus, intestines, and rectum) matches that for workers in the alcoholic-beverages trades.⁸ The excessive risk of oesophageal cancer in migrants from other countries could not be explained. In particular it was difficult to see why migrant males, but not females, should have experienced higher risks of developing oesophageal cancer than those remaining in their respective home countries.

All migrant groups in Haenszel's study showed an excessive mortality from cancer of the stomach. Previous investigators have reached the same conclusion.⁹ In general, the higher rates in migrant groups seemed to be matched by similarly high rates in the respective countries of origin.

Previously, D. F. Eastcott¹⁰ and G. Dean^{11,12} reported that male migrants from the United Kingdom to New Zealand and South Africa, respectively, experienced a higher expectation of developing lung cancer than their native-born white peers, despite a similar average exposure to tobacco smoke. The lung-cancer rates of the migrants were, in fact, intermediate between those of the adopted country and those of the country of origin. The rates for those migrating after the age of 30 were higher than for those migrating before that age. Haenszel⁴ also found excessive mortality from lung cancer among migrants from the United Kingdom to the United States. These findings suggested that persons born in the United Kingdom are exposed to an environmental carcinogen which is absent from, or less prevalent in, the country to which they emigrate and that they carry with them the effects of this exposure. Prospective studies with detailed records of smoking habits are required before this theory can be finally accepted.

At the conclusion of his 1961 paper Haenszel⁴ made several suggestions for further work, including collaborative studies with standardized methods between investigators in the U.S.A. and in the countries of origin of migrants. He and Staszewski³ have now reported such a study of Polish migrants to the United States. They confirmed, first, that, while the age-specific mortality among both sexes for cancer of the oesophagus is similar in native U.S. whites and native Poles, the rate in migrant Polish males, but not females, is substantially higher; and, secondly, that the mortality rates for cancer of the stomach in migrants of both sexes were similar to those in Poland and higher than those in the United States. It is possible that the persistence of dietary customs

and habits among migrants causes the excess of stomach cancer, but the excess of cancer of the oesophagus in migrants remains unexplained.

Mortality rates for cancer of the colon and rectum are higher in the United States than in Poland, but the migrant does not benefit from this: his expectation of cancer of these sites conforms more closely with those in the host country. Within the United States mortality from cancer of the colon and rectum varies in different regions, and more migrant Poles settle in the north-east region, where the rates are unusually high. As in the case of the oesophagus, mortality from cancer of the larynx and from cancer of the lung is higher in male migrants than in U.S.-born white males or in stay-at-home Polish men.

This report of Staszewski and Haenszel³ reflects a new and important development in which epidemiology, as an investigative tool, crosses frontiers and stimulates the standardization of methods of diagnosis and the collection and storage of data. It may be a vital step in the attempt to distinguish genetic from environmental factors in the causation of disease. The authors cannot, and do not, claim that the data at present available to them from Poland are strictly comparable with those from the U.S.A., but the fact that they have undertaken this study jointly will itself help to rectify this difficulty in the future. In East Africa M. S. R. Hutt and D. Burkitt¹³ are exploiting a somewhat similar geographical approach to the epidemiology of cancer.

The facts as known at present, if taken at their face value, suggest that the migrant fares rather badly in respect of his risk of developing cancer, especially cancer of the oesophagus and larynx. Is he constitutionally a different type of person from the non-migrant? Such a difference could be reflected either as an unusual liability to develop cancer or as a tendency to expose himself excessively to environmental carcinogens. Here it is essential that exposure to tobacco and alcohol be carefully taken into account in comparisons between migrants and non-migrants. Provided this condition is fulfilled, and provided standard methods are used, there is good reason to hope that future studies on migrants will detect new and important environmental causes of cancer.

New N.H.S. Bill

In the negotiations¹ on the family doctors' Charter the Minister of Health promised to introduce legislation for an independent finance corporation to lend doctors money for providing practice premises. Last week he introduced a Bill² in the House of Commons with this as its first purpose. The establishment of such a corporation was one of the demands in the Charter on which general practitioners put much emphasis, and it was one of the matters on which both the Conference of Local Medical Committees and the Representative Body³ insisted that the Minister should give a positive assurance of intent. It is unlikely that the debate on the second reading of the Bill, which took place in the House of Commons this week after we had gone to press, will have shown any major differences of party political opinion on what is proposed. The Bill should become an Act by the time the new contract for general practitioners has been priced by the Review Body.

The General Practice Finance Corporation, as it would be called, would operate in England and Wales and Scotland. It would consist of up to eight members (including a chair-

¹ Steiner, P. E., *Cancer: Race and Geography*, 1954. Baltimore.

² *Brit. med. J.*, 1965, 1, 1.

³ Staszewski, J., and Haenszel, W., *J. nat. Cancer Inst.*, 1965, 35, 291.

⁴ Haenszel, W., *ibid.*, 1961, 26, 37.

⁵ MacMahon, B., *Acta Un. int. Cancr.*, 1960, 16, 1716.

⁶ Segi, M., *Age-adjusted Death Rates for Malignant Neoplasms, for Selected Sites, by Sex in 24 Countries, in 1952-53, 1954-55, and 1956-57*, 1959. Department of Public Health, Tokoku University School of Medicine, Sendai, Japan.

⁷ Wynder, E. L., Bross, I. J., and Feldman, R. M., *Cancer (Philad.)*, 1957, 10, 1300.

⁸ Registrar-General's Decennial Supplement, England and Wales, 1951, Pt. 2. Occupational Mortality, 1958. London.

⁹ Lombard, H. L., and Doering, C. R., *J. Prev. Med.*, 1929, 3, 343.

¹⁰ Eastcott, D. F., *Lancet*, 1956, 1, 37.

¹¹ Dean, G., *Brit. med. J.*, 1959, 2, 852.

¹² ———, *ibid.*, 1961, 2, 1599.

¹³ Hutt, M. S. R., and Burkitt, D., *ibid.*, 1965, 2, 719.