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EDITORIAL

Why neuroepidemiology?[1]

In the United Kingdom it is generally agreed that, overall, there are too few hospital specialists in comparison with other European countries and especially the United States of America. particularly in specialties such as neurology. Why create new specialties, particularly to bridge a gap that, before somebody mentioned it, was not very obvious?

Neuroepidemiology is defined as the study of the distribution and dynamics of neurological disease in human populations and of the factors which affect their characteristics. In the USA, neuroepidemiology (neurological epidemiology) is considered to be a new and exciting field and a new international journal has already been launched (*Neuroepidemiology*, ed. B. S. Schoenberg, 1982). At the National Institutes of Health, Bethesda, there is a section of neuroepidemiology, with a planned career structure and definite guidelines, the suggestion being that the potential neuroepidemiologist must be of 'board-standard' in neurology and must have satisfied examiners of one of the many schools of epidemiology. An undoubted stimulus was the Nobel Prize awarded to Carleton Gajdusek for his work on the disease *Kuru* in the highlands of New Guinea, but are neuroepidemiologists of the future expected to go, unlike Robinson Crusoe in Tobago, fully equipped on some geographical isolate, able to devise and carry out his study, analyse his results and present his findings unaided? This might be an alternative approach, one that might overcome the Orwellian nightmare expressed by Rothman (1981), in his article 'The rise and fall of epidemiology, 1950–2000 A.D.'. In essence, the problem Rothman sees is one of access. How can the epidemiologist gain access to patients' clinical information through case records, follow-up data etc., without becoming bogged down in the regulations and the bureaucracy which were initially set up to maintain patient confidentiality during the 1970s? There is a different approach which circumnavigates this problem – in fact, the problem need never arise.

Epidemiologists understand the problems of studying diseases with a defined population, while the clinician aims to diagnose a given disease, dividing patients into those who definitely have the disease, those who have not the disease, and those who might have the disease. As with the epidemiologist, the clinician can define the sensitivity and the specificity of a given test in order to establish diagnostic accuracy for the purpose of their study. In fact, before a study can begin, the clinician must define the disease in question, the features that are essential for diagnosis, and the diagnostic base in every patient on which the diagnosis depends. The two specialities working together must surely be the answer to the prayers of both. Epidemiologists have a lot to offer clinicians: namely, how to study their patients, how to investigate aetiology and risk factors, how to assess the efficacy of therapy etc. Clinical trials are essentially epidemiological studies.

So why neuroepidemiology? Neurological diseases – such as multiple sclerosis, Guillain–Barré–Strohl syndrome – are extremely difficult to define. If definitions are too sensitive, then incidence rates and prevalence rates determined by the epidemiologist will be totally inaccurate. Many studies which differ widely in their reported incidence rates do so simply because the definition of the disease varies from study to study, although each uses the same diagnostic label. The neurological diseases are poorly defined in the International Classification of Diseases, Injuries and Causes of Death, published every ten years by the World Health Organization (1977); the last revision was particularly unsatisfactory (Kurtzke, 1979).

Neurologists must review their methods of classification, and we have recommended ways in which this can be done (Capildeo *et al.* 1978, 1980). For neuroepidemiological purposes, we welcome

[1] Address for correspondence: Dr F. Clifford Rose, Department of Neurology, Charing Cross Hospital, Fulham Palace Road, London W6 8RF.

the opportunity to work with our colleagues on topics of joint interest; to this effect, the Neuroepidemiological Unit at Charing Cross Hospital, London, is composed of both neurologists and epidemiologists with recourse to an expert statistician, superb computer facilities and access to other colleagues who can help and advise.

In England, the first epidemiologist, William Farr was appointed to the General Register Office in 1838; 'Bills of Mortality' go back long before to John Gaunt, and we should use them to develop new areas of epidemiological research. Hence, neuroepidemiology (Rose, 1980; Schoenberg, 1978).

RUDY CAPILDEO,
S. HABERMAN,
BERNARD BENJAMIN AND
F. CLIFFORD ROSE

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