made." The doctor can thus use his medical knowledge to develop the interview in the most profitable directions. Further, "in spite of the obvious limitations of a survey by interview only, the results merit description since they illustrate the extent to which various types of complaints restrict the activities of old people." This raises the interesting point, To what extent could the symptoms be satisfactorily recorded by lay persons? Sheldon states that he found considerable discrepancies in the sickness data recorded by himself and by lay investigators, but gives no details. His own inquiry was limited to conditions confirmation of which did not depend on clinical examination, but he suggests that an expert examination, including a physical examination, of a random sample might be possible for certain conditions. Is it possible that lay persons can satisfactorily obtain information on certain conditions, the symptoms of which are readily recognized and assume importance only when the patient is aware of their presence? It is to be noted that in the investigations on the common cold (Andrewes, 1948) the lay subjects record their symptoms, and the doctor then decides whether or not they had a cold.

Formulation of the Problem

The planning and execution of a morbidity survey require that the purpose and objectives of the survey be defined with clarity and precision; that the scope and limitations of the method of survey be recognized; and that the survey as planned will in fact give the information which it is intended to obtain. What is eventually included will be a compromise between what the investigator would like to conclude, whether the criteria can in fact be assessed or measured, and whether the facilities are available for doing so. This process can be illustrated by a proposed inquiry into the loss of working capacity due to chronic sickness. To be decided are the definition of chronic sickness and the criteria for loss of working capacity. There is no hard-and-fast definition of chronic sickness, and it is feasible that the meaning adopted will depend on the objects of the inquiry. In some employments the loss of working capacity may be directly measurable by loss of output, but in others it may be possible to measure only loss of working time—that is, absenteeism—and it may or may not be possible to assess how much of this is due to chronic sickness. Even then what causes incapacity in some employments may not do so in others. The final form of the inquiry may thus be greatly restricted and the results open to many reservations.

Discussion

The purpose of morbidity surveys is to provide data on the incidence, social pattern, and method of spread of sickness, and thus produce a basis for the planning of the health services. This falls into two parts, the action required to prevent disease and the services necessary for treatment, or as Ryle (1946) puts it, "social planning and political action." The various kinds of surveys are not alternatives, but provide information of different kinds, each contributing to the picture as a whole, but only to the extent that the information presented is reliable. Small detailed surveys, especially if the results are tested by repeated inquiry, are obviously of special importance.

There is an urgent need for research into all aspects of morbidity surveys, not only in regard to methods of field inquiry but also in regard to related matters such as the criteria for various environmental factors and the statistical treatment of data. The recent difference of opinion between Woolf and Waterhouse and Buckatzsch (Buckatzsch, 1947) on the method of estimating the effect of inter-correlated social data on infant mortality illustrates the need for statistical research, the application of which to social inquiries has been neglected. The dearth of essential "tools" is due in part to the urgency of the tasks which have faced social scientists, which has led them to "get on with the job" instead of devoting their energies to developing and assessing methods. The future of social surveys, including morbidity surveys, depends on the developing and testing of techniques. The aim in social

inquiries should be to impose the same standards of controlled experiment and investigation as are applied in the natural sciences.

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EPILEPSY AND TETANY

BY

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The following case report shows that the true significance of an attack of "symptomatic" epilepsy may long remain latent.

Case Report

A flight lieutenant in the R.A.F. aged 24 was admitted to an R.A.F. hospital on July 11, 1947, with a story from his medical officer that a batwoman who had gone to remove his supper tray had found him in bed in a semiconscious state, and when she approached him he made as though to strangle her; for this reason he was put in charge of the neuropsychiatrist.

On questioning, he denied any memory of this attack, after which he felt weak but not confused, nor did he complain of headache. For three days previously he had complained of some malaise, nausea, anorexia, and later vomiting, followed by the most striking symptom at this stage—hiccup. He had not bitten his tongue or been incontinent in this attack, but he gave a history of a similar chain of events two years previously while overseas, ending in an attack in which he bit his tongue. On account of that epileptiform event he had been invalided home. During the intervening period he claimed to have had perfectly normal health and had taken no medicine or tablets.

His past history showed nothing to suggest petit mal, and he had not suffered from fainting attacks or headaches. He had never sustained a head injury. He had had diphtheria and pneumonia as an infant, and his appendix had been removed for an acute attack without complications three months before admission.

Examination showed a well-built man with no evidence of loss of weight. There was some dryness of the mouth (to which he attributed his slight dysarthria), with a healed scar on his tongue. Mentally he seemed rather apathetic and slightly drowsy, and was hiccupping 20 to 30 times a minute. Blood pressure was 120/80. No other abnormal physical signs were found in any system on clinical examination.

During his first three days in hospital numerous measures were tried to control his hiccup, which persisted even during sleep, but no treatment had any prolonged effect. He was encouraged to eat what he could manage of light diet and to take plenty of fluids, as the vomiting had ceased since admission.

On July 14 he was still a little drowsy and dry in the mouth. His blood urea was 85 mg. per 100 ml., blood sugar 130 mg. per 100 ml., and his urine contained a cloud of albumin. A general

medical opinion was here sought; it was considered that these findings, together with his clinical state at the time, were accounted for by the degree of dehydration present, and although his hiccup had become much less frequent (possibly owing to thiopentone and cyclopropane anaesthesia), 2 pints (1.14 litres) of normal saline solution were given intravenously on July 16. Soon after this his clinical state returned to apparent normality and he felt fit. Four days later his blood urea was 20 mg. per 100 ml. and his albuminuria had disappeared. During this period examination of cerebrospinal fluid, blood W.R., and intravenous pyelogram were all negative.

As he felt so fit and had a long-standing arrangement to start a 10-day holiday on July 31, he was allowed to leave the hospital with the idea of readmitting him afterwards for further investigations. While at home on the very night of his discharge he again developed nausea and hiccup and vomited about 15 times during the subsequent 36 hours before being readmitted.

The striking feature now was the presence of marked tetany, attacks of which he had been having for about 12 hours previously. The condition was symptomatically relieved by the intravenous injection of 10 ml. of 10% calcium gluconate, but three further attacks were witnessed within the next 24 hours, evidently initiated by the effort of vomiting. The extremities assumed the typical posture, the breathing became laboured, cyanosis was marked, and consciousness was lost within a minute. The pulse was 54, with some premature systoles, its volume remaining good. After about three minutes gradual relaxation occurred, his colour improved, and his jaw, clenched at first, started a regular munching movement, but there were no true clonic movements of this organ or of his limbs. Unconsciousness remained for about 15 minutes, with eyes rolling and squinting, but with normal-sized equal pupils. There was no laryngeal stridor. His blood pressure during the recovery phase was 120/80.

The clinical diagnosis of tetany from alkalosis, with hypochloraemia, was confirmed by the biochemical investigations.

Only one attack occurred after the start of intravenous drip saline with 10 ml. of 10% calcium gluconate per pint (568 ml.), and within two weeks his blood chemistry had returned almost to normal, all symptoms having subsided.

During this exacerbation of symptoms the time had naturally come to review the nature of his attack in Egypt two years previously and any other relevant past history. He was himself quite definite that the prodromal events leading up to all his attacks had been very similar, and on direct questioning he remembered having had tinglings in his hands, feet, and lips before his original attack, though never any cramp. The description by the sister who witnessed the end of the attack had been recorded as a "convulsion, during which he was unconscious, with eyes open and face twitching for one minute, followed by a period of confusion in which he answered only 'Yes' or 'No.'" The tongue had been bitten, but there had been no incontinence.

No abnormality had been found on examination of the central nervous system and there was no pyrexia. A blood smear had been negative for malaria parasites, and examination of the C.S.F. had shown normal pressure, cell count, protein, and chlorides. He had been invalided home on account of this epileptiform attack and made permanently unfit for flying duties. On return to this country, radiographs of the skull and an electro-encephalogram had proved negative, as also had clinical examination by the consultant in neurology.

The cause of his attacks of vomiting remained the final matter for elucidation; he was most definite that he had had no vomiting whatsoever in the intervening two years and had never suffered from diarrhoea, indigestion, or any abdominal pain. In spite of this, the solution was apparently found in a barium meal, which showed a small prepyloric ulcer, with a large atonic stomach, a great quantity of resting juice, and a considerable barium residue in the stomach at eight hours, and some at 24 hours, even after a course of routine medical peptic-ulcer treatment for three weeks, with full doses of belladonna.

On Oct. 7 the abdomen was opened through a transverse epigastric incision and a partial gastrectomy was performed. A healed ulcer was demonstrated in the prepyloric region anteriorly: a well-developed cholecysto-duodenocolic membrane was found binding down the first part of the duodenum.

At this point the duodenum was constricted and partially obstructed owing to thickening and fibrosis in its wall for about 4 cm., the parts distal to this being of normal calibre and consistency.

The findings were confirmed by examination of the excised specimen; the healed gastric ulcer did not appear to be producing pyloric stenosis, and it was presumed that the obstruction was caused by the organic changes in the duodenum secondary to the membrane as described.

Comment

This case shows two main points of interest: first, the fact that his original attack was of an epileptiform nature, which in the light of after events could confidently be assumed to have been of tetanic origin. While true convulsions are so well known in children as part of a tetanic state, it is undoubtedly easy to overlook this possible cause for them in adults, although briefly mentioned in some textbooks. Support is also lent to the opinion that it is unwise to stamp as an "epileptic" a patient who has an isolated convulsion—a point emphasized by Rook (1947).

Secondly, it was natural to presume from the x-ray appearance that pyloric stenosis secondary to a prepyloric ulcer was basically the cause of all his troubles; it was considered at operation, however, that this was not the true explanation but that his obstructive symptoms were due to a duodenal stenosis, secondary to a large persistent cholecysto-duodenocolic membrane. In either case the marked lack of abdominal symptoms apart from his attacks was difficult to explain. The subject is fully reviewed by Mahoney (1946), who considers that this membranous fold occurs in at least 18% of people, but only occasionally gives rise to symptoms. Of the 18 cases which he reports as pathological, the symptoms in the great majority simulated either chronic cholecystitis or duodenal ulcer.

I wish to thank Group Captain F. W. P. Dixon for the surgical notes on this case, and Squadron Leader T. S. L. Beswick for the pathological investigations.

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Medical Memoranda

Liver Abscess: Sporadic Amoebiasis

From time to time sporadic cases of amoebiasis have been recorded in the British Isles. It seems likely that with the return of troops from tropical service in the post-war years the incidence will increase. The following case is of interest in that no tropical connexion or association could be discovered.

CASE REPORT

A man aged 34 was admitted to hospital with a history of sudden onset of epigastric pain five days previously. His pain was associated with vomiting and was worse on deep inspiration. Up to the onset of the pain he had been in good health and had noticed no alimentary upset of any description.

On examination he was seen to be well nourished though sparsely built, and his complexion was pale. The tongue was coated and dry. The abdomen moved well, but there was muscle-guarding and resistance over the right hypochondrium. No mass was felt and the liver was not palpable. The remainder of the abdomen was soft and not tender. White blood cells numbered 27,000 (81% polymorphs). X-ray examination showed no gas under the diaphragm, although the diaphragm was raised about 1 in. (2.5 cm.). Temperature was 100° F. (37.8° C.), pulse 100. A diagnosis of probable leaking duodenal ulcer was made, and expectant treatment adopted. His general condition, however, did not improve, and five days later the abdomen was opened.

Operation.—The abdomen was explored through a paramedian incision. A large soft liver was found to reach to the right iliac fossa: it was so soft as to be impalpable even under anaesthesia. The peritoneal cavity and abdominal viscera were otherwise normal. The right lobe of the liver was then explored with a wide-bore needle and 5 pints (2.84 litres) of "anchovy sauce" pus were aspirated. On probing with the finger a further loculus was entered