Anticonvulsant therapy in a general practice population in Northern Ireland

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SUMMARY. The clinical management of 242 patients receiving anticonvulsant drugs in a general population of over 75,000 patients in Northern Ireland was reviewed.

The prevalence of treated epilepsy was 3.99 per 1,000 population. There were differences in the classification of epilepsy recorded by the general practitioners and an independent epileptologist. In particular, partial epilepsy was underrecorded by the general practitioners. Comparisons between drug dose, type of epilepsy, frequency of fits and antiepileptic drug serum levels were difficult to make. There was, however, evidence of inadequate or inappropriate antiepileptic medication. There were also problems with compliance: 23 per cent of patients had deliberately stopped taking their medication, nearly half of them for over a month at a time.

Introduction

THERE are varied reports on the surveillance and management of epileptic patients in the United Kingdom.[1-6] The purpose of undertaking this study in general practice was to estimate, in the practices concerned, the prevalence of treated epilepsy, identify types of epilepsy, record the family history of the patients, assess fit control and look at the antiepileptic drugs used, including the types of drugs, serum levels and compliance.

Methods

Nine general practitioners, each one a partner in a different practice and a part-time lecturer in the Department of General Practice, the Queen's University of Belfast, participated in the survey. The total practice population was 75,200; the practice lists ranged in size from 5,000 to 12,000 patients. Seven practices were in Belfast, one was in the greater Belfast area and one was a rural practice, 35 miles from Belfast. The study took place over an 18-month period from 1979 to 1981.

The criteria for inclusion in the study were as follows: patients who had more than one non-febrile seizure, were on antiepileptic drugs at the time of the study, were over six months old and were cared for in the home. Over a six-month period, patients were recruited into the study when they requested a repeat prescription for antiepileptic drugs. Once identified, these patients' medical records were scrutinized to confirm the above criteria for inclusion in the study. The patients were then approached by the general practitioner, and the nature of the study was explained to them.

An independent epileptologist examined all the relevant data—medical notes and a history from the patient or close relative—for a detailed account of the seizure pattern and classified the epilepsy of all the patients using the international classification of epilepsy.[7]

Results

Three hundred patients taking antiepileptic drugs were identified out of a total population of 75,200, giving a prevalance for treated epilepsy of 3.99 per 1,000. The number of patients participating in the study was 247; five were found not to have epilepsy and were excluded. The age and sex distribution of the remaining 242 patients is shown in Figure 1.

Figure 2 shows the type of epilepsy at onset classified by the international classification compared with the traditional classification by the general practitioner. Most of the previously unclassified patients had diagnoses of partial epilepsy and one third of the patients in the study were classified as having temporal lobe epilepsy (TLE). In 175 cases (72 per cent) the general practitioner's records included a comment or summary relating to the electroencephalogram (EEG), although 92 of these were considered by the patient's doctor to be unhelpful in classifying the epilepsy.

Two thirds of all patients first presented with their epilepsy before the age of 25 years. Figure 3 shows the cumulative frequency distribution for age of onset and type of epilepsy. A first-degree family history of epilepsy—that is in siblings or parents—was present in 28 (12 per cent) of those studied.

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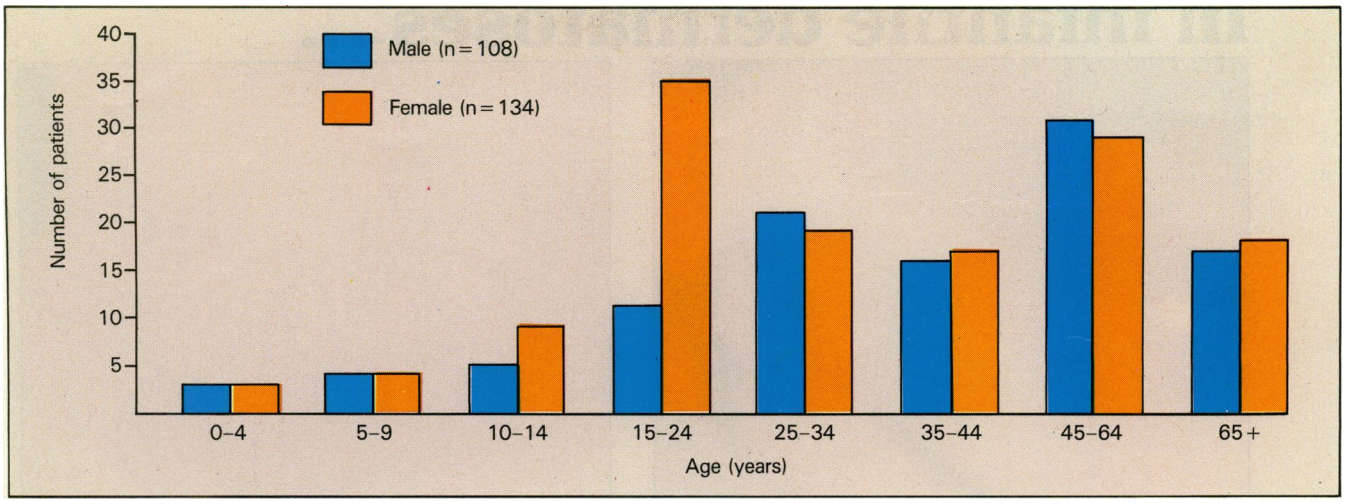


Figure 1. *Age and sex distribution of the 242 patients.*

Figure 2. *Classification of epilepsy type, at onset by general practitioner and later by independent epileptologist.*

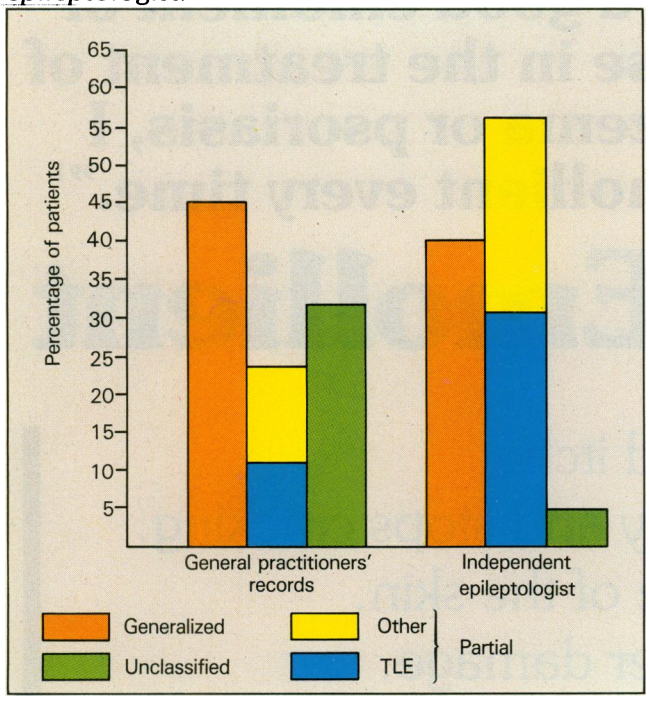
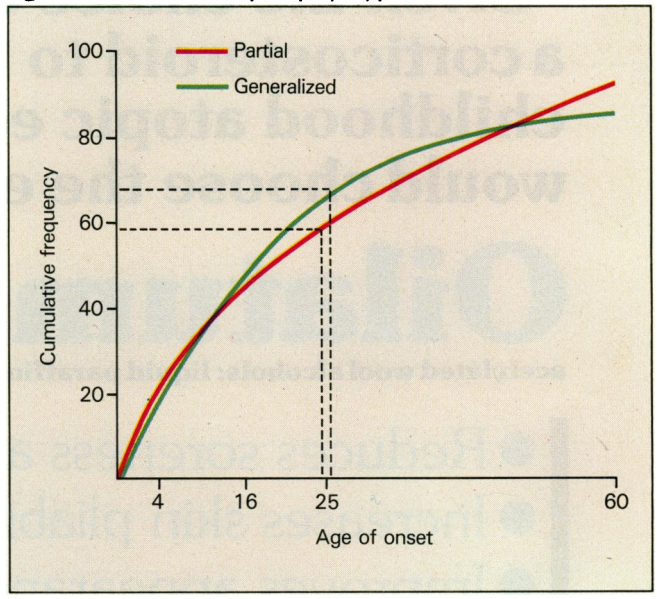


Figure 3. *Cumulative frequency distribution for age of onset and epilepsy type.*



The duration of antiepileptic medication is shown in Figure 4; 143 patients (59 per cent) had been treated for epilepsy for 10 years or more, and 86 patients (36 per cent) for 20 years or more. The number of antiepileptic drugs prescribed for the patients in the study is shown in Figure 5. Seven patients had discontinued their own medication temporarily at the time of the study. Further questioning revealed that one in four of the patients in the study had deliberately stopped taking their own medication at some point, nearly half of them for over a month at a time. Phenobarbitone was the most commonly prescribed single drug (Figure 6), and phenobarbitone with phenytoin the most frequently used combination of drugs.

Freedom from fits in the preceding year occurred in 72 (30 per cent) of cases. Figure 7 shows the frequency of fits per annum in relation to epilepsy type, drug used and drug serum level for the most commonly used drugs. Optimal ranges are those used in the Maudsley Hospital, London although the toxic level for sodium valproate[8] has not as yet been firmly established. One in four patients had not attended their general practitioner or hospital outpatient clinic in the previous year despite being in receipt of repeat prescriptions for antiepileptic medication. Approximately half of this group had had one or more fits in the preceding year.

Discussion

Estimates of the prevalence of epilepsy vary with the criteria used for its definition. The prevalence of 3.99 per 1,000 for treated epilepsy in our study is similar to the Royal College of General Practitioners' study in 1960, which showed a prevalence of 4.18 per 1,000 for chronic epilepsy.[6]

Shorvon and Reynolds[9] have stressed the need for an early accurate diagnosis of epilepsy in order to help with the medical management and prognosis. The most striking factor to emerge from the reclassification by the epileptologist was that the previously unclassified patients were found to have mainly partial epilepsy. There are several possible reasons for this apparent under-recording of partial epilepsy in the notes of general practitioners:

1. Most of these patients will also have attended hospital and classification might not have been clarified.
2. The classification may have been made years ago without EEG investigation and may require updating.
3. Generalized epilepsy, particularly grand mal, is relatively easy to recognize and to record as such, whereas other more obscure types are probably entered in the medical records as 'seizures', 'fits' or just 'epilepsy' and hence appear as unclassified.

The higher incidence of partial epilepsy found by the epileptologist is in agreement with other reports, such as the comprehensive study of Hauser and Kurland.[10] The suggestion for this preponderance is that partial epilepsy is usually more intractable and less liable to remit than generalized epilepsy, with patients often on long-term maintenance therapy.

Out of the 247 patients who agreed to participate, the epileptologist found only five patients who were considered not to have epilepsy. This is an encouragingly small number. Jeavons[11] reported that 19 per cent of 276 adults and 21 per cent of 195 children attending his clinic with a diagnosis of epilepsy did not, in fact, have the condition and it seems likely that many people might be taking antiepileptic medication unnecessarily.

In this study, 30 per cent of patients were free of fits in the preceding year. This is a lower proportion than reported in other studies and contrasts markedly with that of Zander and colleagues[3] who found that 87 per cent of patients were fit free; however, 44 per cent of their patients were not on antiepileptic medication. The discovery that three fifths of our patients had received treatment for more than 10 years and that over one third were on treatment for 20 or more years is a disturbing reminder that antiepileptic drugs are not curative, but merely raise the convulsive threshold.

As already stated, 50 per cent of our patients were on one drug, and less than 10 per cent on three or more drugs. However, there is room for improvement since it has been shown that 78 per cent of newly diagnosed epileptics can be controlled on single-drug therapy.[12]

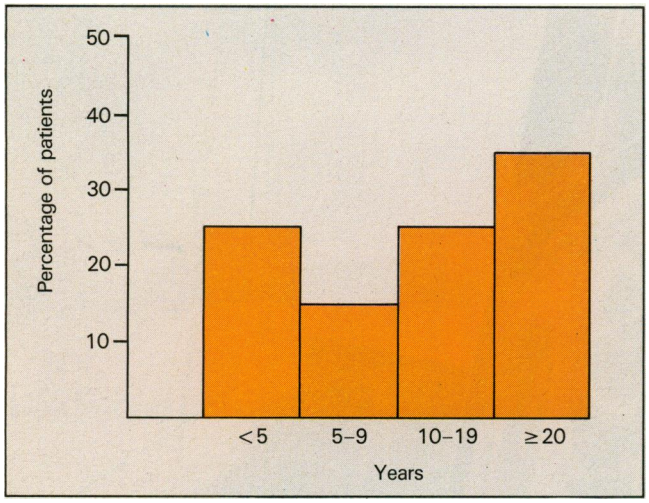


Figure 4. *Duration of antiepileptic medication.*

Figure 5. *Number of antiepileptic drugs prescribed per patient.*

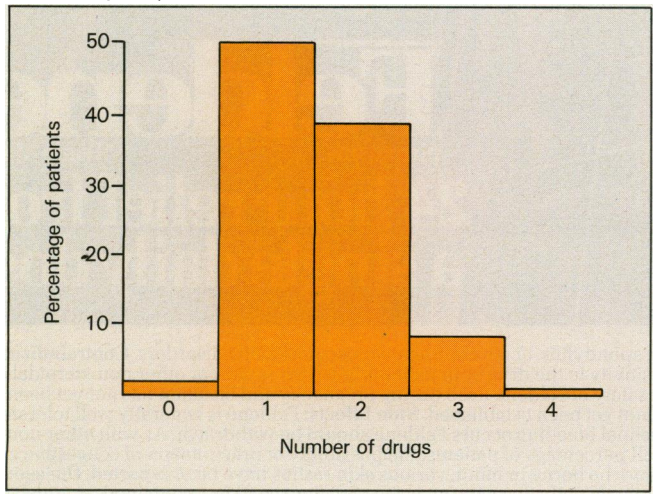
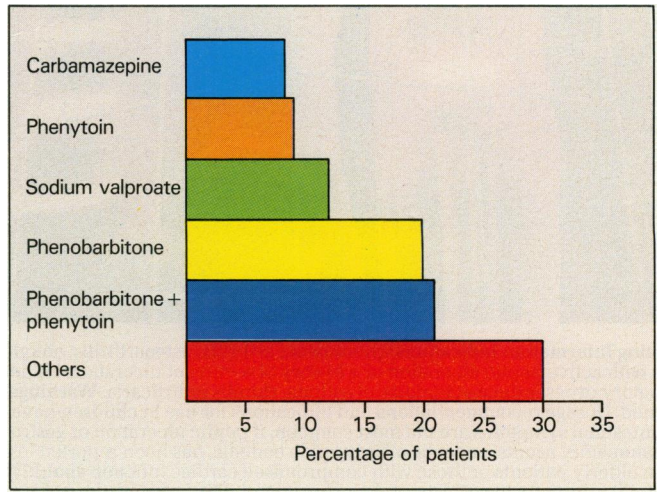


Figure 6. *Percentage of patients on single drugs, and commonest combination.*



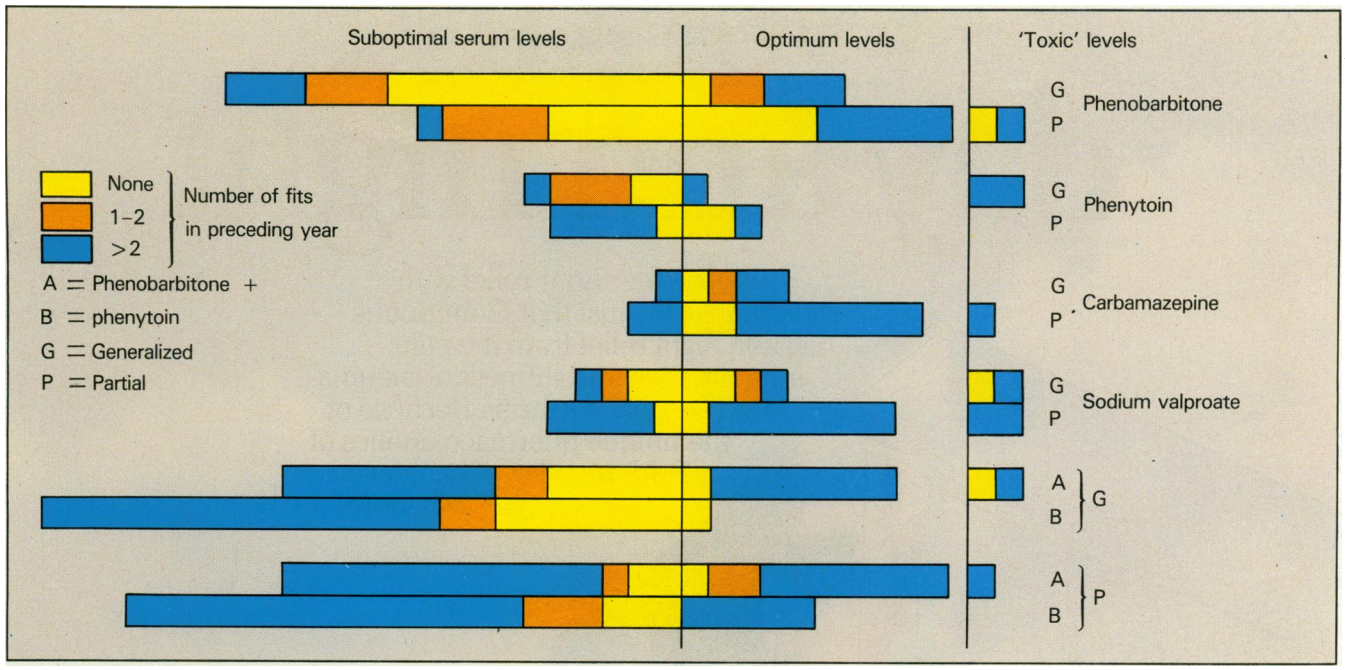


Figure 7. *Degree of fit control relative to serum levels and epilepsy type for monopharmacy and commonest combination.*

Epilepsy is so variable that precise comparisons between types of drugs, fit control and serum levels are extremely difficult. Nevertheless, three points do stand out. First, there were many patients with suboptimal therapeutic levels who were free of fits in the preceding year. This was particularly noticeable in patients receiving phenobarbitone. While in some cases there may have been remission of the epilepsy, others will have been 'mild' epilepsy which can be controlled with smaller doses of drugs than those required to reach the therapeutic serum drug levels. The correct dose, even if small, is the one that controls the seizures.

Second, there were patients with suboptimal therapeutic levels who were having frequent fits. The number of patients in this category who were taking only one drug was small. This was not so for patients taking combined therapy—approximately 37 per cent of patients on phenytoin with phenobarbitone had fits monthly or more often; four out of five of these patients had suboptimal serum levels for phenytoin and only half the required levels for phenobarbitone. In fact, 88 per cent of all the patients using this combination of drugs had suboptimal phenytoin serum levels. Optimal serum levels have been defined for most drugs, and now that monitoring is possible it is unsatisfactory for patients with frequent fits to be allowed to continue on an inadequate dose of a single drug. Also, for those patients on two drugs, it was obvious that the second drug has been added with no attempt to monitor the serum level of either, and this is particularly unfortunate since many in this group were having frequent fits.

Third, there were patients taking a single drug who were experiencing frequent fits despite having optimal serum levels of drug. They may of course represent people with intractable epilepsy. The finding could also indicate that the choice of drug was inappropriate and an alternative drug should be considered.

The interaction between fit control, serum antiepileptic drug levels and drug compliance may be too complex for the patients to understand. Our study made us aware that full compliance rarely happens—one in four patients deliberately stopped taking their medication at times, half of them for over one month with a resultant increase in fit frequency. Our results suggest that the principles of antiepileptic drug therapy as stated by many authors in the past few years[12-15] have not been adhered to by some of our chronic epileptics.

It is hoped that the increasing availability of monitoring for serum levels of anticonvulsant drugs and the practical advice that has been published will encourage general practitioners to reassess the clinical management of the epileptics in their practices.

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Bronchodilator effect of disodium cromoglycate

Twelve asthmatic subjects (mean age 23.3 years) exercised on three separate occasions, during which they all received combinations of disodium cromoglycate (DSCG) aerosol (10 mg) or placebo, both before and after exercise in a randomized double-blind study. There was a significant improvement in resting FEV_1 in those subjects receiving DSCG after exercise compared with placebo ($P<0.05$). Following exercise there was a more rapid recovery of FEV_1 in those receiving DSCG after exercise compared with placebo ($P<0.005$). The greatest differences in FEV_1 between placebo and DSCG treated groups were seen in the first 20 min. after receiving the drug in the postexercise period. These findings suggest that DSCG has a significant bronchodilator effect.

Source: Jones RM, Horn CR, Lee DV, *et al.* Bronchodilator effects of disodium cromoglycate in exercise-induced bronchoconstriction. *Br J Dis Chest* 1983; **77:** 362.