

Feasibility and effects of nurse run clinics for patients with epilepsy in general practice: randomised controlled trial

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BMJ 1997;314:120-2

Abstract

Objective: To test the feasibility and effect of nurse run epilepsy clinics in primary care.

Design: A randomised controlled trial of nurse run clinics versus "usual care."

Setting: Six general practices in the South Thames region.

Subjects: 251 patients aged over 15 years who were taking anti-epileptic drugs or had a diagnosis of epilepsy and an attack in the past two years who met specified inclusion criteria and had responded to a questionnaire.

Main outcome measures: Questionnaire responses and recording of key variables extracted from the clinical records before and after the intervention.

Results: 127 patients were randomised to a nurse run clinic, of whom 106 (83%) attended. The nurse wrote 28 letters to the general practitioners suggesting changes in epilepsy management. For this intervention group compared with the usual care group there was a highly significant improvement in the level of advice recorded as having been given on drug compliance, adverse drug effects, driving, alcohol intake, and self help groups.

Conclusions: Nurse run clinics for patients with epilepsy were feasible and well attended. Such clinics can significantly improve the level of advice and drug management recorded.

Introduction

Self help groups, such as the British Epilepsy Association, have identified unmet needs for information and counselling among patients with epilepsy.¹ Recognising the unmet needs of such patients, the National Society for Epilepsy adopted a model used for other chronic conditions (such as diabetes) of training nurses to help patients to manage their own condition.²

We evaluated the usual care provided to 251 patients with epilepsy in six general practices.^{3,4} We found that the advice which their doctors viewed as important for self management had frequently not been provided or recorded in the patients' notes. We then aimed to test the feasibility and effect of setting up a nurse run clinic in each of the six practices. We aimed (a) to establish whether patients with epilepsy would be willing to attend nurse run clinics and whether this

would lead to more advice and monitoring of anti-epileptic drugs and (b) to ascertain the effect of the clinics on recording of advice on specified topics related to epilepsy.

Patients and methods

The patients were all aged over 15 years, either took anti-epileptic drugs or had had a diagnosis of epilepsy and an attack in the previous two years, met specified inclusion criteria, and had responded to a questionnaire on their physical and psychological condition. (The method for identifying patients is described elsewhere.³)

We extracted from patients' records information on advice recorded as having been given to the 251 patients on specified topics (see table 2); this was stage 1 of the study. The patients were then randomised either to intervention (n=127) or to "usual care" (n=124). Those in the intervention group were offered an appointment with a nurse with special training in epilepsy (DR) at what was called a neurology clinic; those in the usual care group received care from their general practitioner or specialist (the care is described elsewhere).³

The nurse run clinics took place at the patients' own practice. The first appointment was for 45 to 50 minutes. The nurse asked about the frequency of epilepsy attacks and how patients managed their drugs; she took a blood sample for determination of plasma concentration of the drug if the patient was taking phenytoin, phenobarbitone, or carbamazepine and had not had the concentration determined in the past year. Individual concerns were discussed. She also gave advice on various medical and social aspects of epilepsy when appropriate, together with information leaflets. The nurse used a structured record card to record the advice she gave.

A second appointment lasting 15-20 minutes was offered three months later. At this visit drug concentrations and drug taking were reviewed and advice and support offered. The nurse again used a structured record card to record the advice she gave.

About three months after the second appointment participants were sent a second questionnaire, and advice given was reassessed using data extraction forms (stage 2). *t* Test and χ^2 tests were used to make comparisons between respondents and non-

Table 1 Nurse's reported findings and proposals* for changes in drug management about which she wrote to general practitioners of 28 patients

Finding or proposal	No of patients
Proposed referral to specialist (patient taking several drugs; poor control)	9
Proposed increased dose of anti-epileptic drugs	5
Found adverse effects from anti-epileptic drugs	4
Found mismatch between specialist advice and drug taken	3
Proposed decrease in total daily drug dose	3
Proposed clobazam before menstruation	3
Proposed reduction in frequency of drug taking (but no overall reduction)	3

*There was more than one finding or proposal for some patients.

respondents and between the intervention group and the group receiving usual care.

Results

Participation and response rates have been described previously.³ We found no significant differences in the age, sex, or recency of seizure for the two groups. Of the 127 patients offered a first appointment with the specialist nurse, 106 (83%) attended. No significant difference was found between patients who did and did not attend in terms of age (52.1 years *v* 48.5 years respectively, $P=0.782$) and sex (54.7% *v* 52.4% male, $P=0.849$). When offered a second appointment, 97/106 (92%) patients attended; 97/127 (76%) patients therefore attended both appointments. Between stage 1 and stage 2, 11 patients moved away, three died, and two were withdrawn by general practitioners or carers because of illness that met the exclusion criteria, leaving 235 patients in the study.

Drug management

At the start of the study 169/251 (67%) of patients were taking only one drug for their epilepsy. During the six months before stage 1, 36/127 (29%) of patients randomised to nurse run clinics and 29/124 (23%) of patients randomised to usual care had had their blood concentration checked ($P=0.28$). By stage 2, 80/121 (66%) of patients randomised to nurse run clinics and 19/114 (17%) of patients randomised to usual care had had their blood concentration checked ($P<0.01$) in the previous six months. In some cases the nurse believed that the patient's drug management might be improved, and she wrote 28 letters to patients' general practitioners about this (table 1).

Recording clinical advice before and after intervention

Clinical data were extracted from the notes of 232 out of the original 251 patients (119/127 in the

Key messages

- Patients with epilepsy report that they are not given enough information about their condition and how to cope
- This study shows that nurse run clinics set up to provide such information and monitoring in six general practices were well attended by patients with epilepsy
- In more than one fifth of patients attending the clinics the nurse identified changes in aspects of drug management that could be improved
- The level of advice recorded as having been given on drug compliance, adverse drug effects, driving, alcohol intake, and self help groups increased significantly

intervention group and 113/124 in the usual care group) at stage 2. Table 2 shows the results according to intention to treat, which was the offer of appointments to see the nurse. The percentage of records with advice recorded as having been given on specified topics was not significantly different at stage 1 for the two groups. At stage 2 the percentage of records with advice recorded as having been given for each topic was significantly different ($P<0.0001$), with more information recorded as given in the group randomised to a nurse run clinic.

Discussion

This is the first report of a trial of the feasibility and effect of nurse run clinics for patients with epilepsy in general practice. We found that most patients with epilepsy were willing to attend a nurse run neurology clinic in primary care. The nurse was able to identify possible improvements in the drug management of over a fifth of the patients she saw. For the intervention group the level of advice recorded as having been given in the clinical records increased significantly. This needs to be interpreted cautiously as the nurse intervention was coupled with structured recording, which was likely to have had an additional effect.

This study was small in size and scope, focusing on process rather than outcomes. A larger sample size and longer intervention and follow up would be necessary to measure potential changes in medical outcomes. It may also be useful to develop an instrument to measure potential changes in patients' knowledge of their condition. The outcome in terms of patient satisfaction was independently assessed with quantitative and qualitative methods.

Table 2 Advice recorded as having been given to patients receiving usual care and to patients attending nurse run clinic. Values are numbers (percentages) of patients

Advice	Stage 1		Stage 2	
	Usual care (n=124)	Nurse run clinic (n=127)	Usual care (n=113)	Nurse run clinic (n=119)
Driving	57 (46)	59 (46)	52 (46)	84 (71)
Drug compliance	31 (25)	32 (25)	29 (26)	95 (80)
Adverse drug affects	10 (8)	13 (10)	18 (16)	86 (72)
Alcohol	13 (10)	15 (12)	16 (14)	92 (77)
Self help groups	5 (4)	3 (2)	6 (5)	79 (66)

Members of the Evaluation Group comprise Drs J Close, A Free, C Hughes, Y Hart, J Ogden, A Orme-Smith, N Stoy, and P Stott.

We thank the British Epilepsy Association for providing free copies of their information leaflets and Professor Roger Jones for comments on a previous draft of the paper.

Funding: The Nuffield Provincial Hospitals Trust and the National Society for Epilepsy.

Conflict of interest: None.

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(Accepted 28 October 1996)

Prevalence of arm movements in patients with coronary heart disease: case-control study

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BMJ 1997;314:122

I had previously noticed that patients with coronary heart disease tended to gesticulate, or sit with their arms up and hands clasped behind their heads, more than patients who did not have ischaemic heart disease.¹ I therefore undertook a pilot study using a goniometer² to measure movements at the elbow joint during a 10 minute interview in a group of patients with proved coronary heart disease and a group of controls. A significant difference, using an analysis of variance, was shown between the patients with coronary heart disease and the controls ($P=0.01$). As the pilot study had only 10 patients in each group, I therefore undertook a larger study with 25 patients in each group.

Methods and results

The coronary heart disease group were 25 consecutive attenders with established coronary heart disease at a chest pain clinic. They were all white and had electrocardiographic changes of ischaemia or previous myocardial infarction. Ages ranged from 33-75 (mean 59.68) years, and 21 were men. The control group were 25 consecutive attenders at a medical clinic free of cardiac complaints, hypertension, hyperlipidaemia, cerebrovascular disease, diabetes, or a strong family history of cardiac disease. Ages ranged from 15-82 (mean 50.24) years, and 19 were men. Each patient sat in an upright, armless chair. A goniometer was placed over the elbow of the dominant arm to record the amount of arm movement over 10 minutes. During this time the patient was asked standard questions on lifestyle, family, and health. The goniometer measures each movement of the joint of 45° in either direction on a two dimensional plane. At the end of 10 minutes a reading was taken; only then was the function of the goniometer explained to the patient.

Patients with coronary heart disease moved their arms during the 10 minute interview significantly more than those in the control group (fig 1). A one way analysis of variance yielded a significance level of $P=0.003$. With a non-parametric Mann-Whitney test there was still a highly significant difference between the two groups.

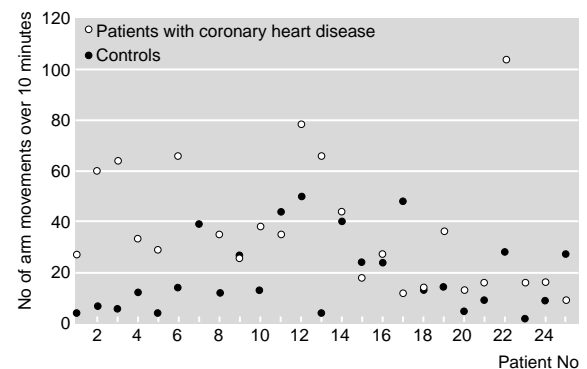


Fig 1 Number of arm movements in 10 minutes in 25 patients with coronary heart disease and 25 controls

Comment

The most obvious explanation of these findings is that type A personalities are prone both to gesticulation and to coronary heart disease. It is possible that people with coronary heart disease move their arms more because they are otherwise physically inactive or their disease causes them to become agitated. However, my own suspicion is that arm movements over a lifetime may be a factor—combined with other known factors—in the development of coronary heart disease. I hope that further studies will show a contributing causative role of arm movements in coronary heart disease through haemodynamics.

I thank Professor Tony Unsworth, University of Durham, for supplying goniometers; Professor Ross Lorimer and Dr Iain Hutton, Glasgow Royal Infirmary, for providing access to patients; Helen Young, nursing department, Glasgow Royal Infirmary, for checking for researcher bias; Dr Gilbert Mackay, University of Strathclyde, for statistical analysis; and Dr C M Traini, for help with the pilot study.

Funding: None.

Conflict of interest: None.

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(Accepted 30 August 1996)