PRACTICE OBSERVED

Practice Research

Shuttle case records: link between general practice and the specialist unit

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Abstract

General practitioners have participated in the long term follow up of 367 patients who have undergone treatment with potent antirheumatic drugs at this hospital. Over the past two and a half years we have used the "shuttle case record" system, whereby patients' records are mailed back and forth between our department and general practitioners. This seems to work well. It is safe for the patients, and they save time and money in travel. The general practitioners like it, it improves communication between them and the specialist unit, and it enables the specialist unit to use its resources and manpower more effectively. The system may also be used to monitor patients with other chronic disorders, and it may be a valuable tool for doing research in general practice.

Introduction

The growing use of highly potent therapeutic agents to treat rheumatic disorders necessitates close monitoring of patients. This is normally done by rheumatology departments, but their resources might be turned to better use if general practitioners could take over part of the work of monitoring. The biggest problem with follow up is communication and the need to improve communication between the primary care physician and

the hospital consultant.¹ Attempts have been made to overcome this.²⁻⁴

We have a system of "shuttle case records" to link the hospital and the general practitioner for the long term follow up of patients who are having treatment for rheumatic disorders. We make the diagnosis either in the outpatient clinic, or during admission. When treatment and follow up measures have been determined all relevant details are entered on to the case record, which is then mailed to the general practitioner, who will check the patient for clinical and haematological signs every three or four weeks. We see the patient in the outpatient clinic every three or four months. We have used this system for two and a half years and report our experience.

Methods

From 1 September 1980 to 31 December 1982 we treated a total of 367 patients with antirheumatic drugs, and they were followed up using shuttle case records. At the time of this review the mean duration of treatment was 20 months and mean duration of follow up by case records 15 months.

There were 239 women and 128 men, mean age 61 years. The diagnoses were as follows: seropositive erosive rheumatoid arthritis 282 (96.8%); seronegative erosive rheumatoid arthritis 60 (16.4%); psoriasis arthropathia 11 (3%); sclerodermy 11 (3%); and polymyalgia rheumatica 3 (0.8%). Penicillamine was given to 286 (78%), azathioprine to 59 (16%), aurothioglucose to 15 (4%), and cyclophosphamide to 7 (2%).

When optimal dosage had been reached and the patients showed signs of improvement a shuttle case record was established. This consisted of a double sheet of thick paper with spaces to enter all relevant data, such as the patient's name, the general practitioner's name and address, the diagnosis, the drug used, the results of haematological investigations, comments, the intervals between follow up visits, and the date of the next visit to the outpatient clinic (figure 1).

Before a case record was prepared the general practitioner's consent to participate in monitoring the patient was obtained by telephone. The patient was informed of the plan for follow up by one of our

TABLE 1—Instances of failure to adhere to the follow up programme as stipulated in the shuttle case record

	No. of instances
General practice (n=109)	
Some serological tests omitted	44
Thrombocytopenia overlooked	5
Leucopenia overlooked	5
Data not entered on to the shuttle case record	20
Shuttle case record not mailed to outpatient clinic	20
Departure from programme in 109 out of 360 follow up visits = 31%	
Outpatient clinic (n=5)	
Thrombocytopenia overlooked	1
Leucopenia overlooked	1
Shuttle case record not returned to general practice	1
Departure from programme in 5 out of 116 follow up visits = 3%	
Patients (n=21)	
Default in follow up	4 patients
Interval of two months between follow up visits	15 patients
Interval of three months between follow up visits	2 patients
Interval of four months between follow up visits	2 patients

TABLE 11—Side effects recorded on shuttle case record during follow up of 367 patients treated with penicillamine (286), azathioprine (59), aurothioglucose (15), or cyclophosphamide (7) over 28 months

Side effect	General practice		Outpatient clinic		Total No. of instances recorded	Total No. of patients with side effect	% of patients with side effect	% Stated in Shuttle Case Record
	Recorded	Overlooked	Recorded	Overlooked				
Exanthema	22	5	19	1	41	6	15	10
Thrombocytopenia	11	5	4	1	15	6	4	10
Leucopenia	11	5	4	1	15	6	4	10
Haematuria	4	3	3	1	7	2	5	5
Arthralgia	4	3	3	1	7	2	5	5
Diarrhoea	4	3	3	1	7	2	5	5
Nausea	4	3	3	1	7	2	5	5
Loss of sense of taste	2	1	2	1	3	1	2	25
Total	67	10	46	2	115	12		

and withdraw the drug in seven. In two cases side effects were overlooked. None of the general practitioners exceeded the maximum dosage stipulated; three failed to increase the dose in patients with persisting disease activity. In consultation with the rheumatology department general practitioners increased the daily dosage in 20 patients whose disease activity increased.

The driving distances between the patients' homes and the clinic were as follows: 0-50 km, 146 (40%); 50-100 km, 122 (33%); 100-150 km, 46 (12%); 150-200 km, 31 (9%); 200-250 km, 8 (2%); 250-300 km, 12 (3%); and 300-500 km, 2 (0.5%). The 125 general practitioners who completed the questionnaire handled about 360 shuttle case records. Each had an average of three patients (table 11). The average duration of the follow up consultation in general practice was five to 10 minutes. Twenty six general practitioners spent zero to

TABLE 12—Number of patients with shuttle case record per general practitioner distributed among all doctors in a group practice

Number of general practitioners	No. of patients with shuttle case record
1	32
2	30
3	12
4	12
5	6
6	8
7	10

TABLE 13—General practitioners' view on the shuttle case record system for monitoring patients

	No. (%)
In favour of participating in monitoring patients	115 (92)
In favour of having the monitoring in the outpatient clinic	115 (92)
No answer	2 (2)

physicians. After the latest laboratory data had been entered the case record was mailed to the general practitioner, together with an introductory letter and an analysis of the patient's disease and treatment regimen. Also enclosed were "therapeutic guidelines," an appendix containing detailed information on the pharmaceutical agent used, indications, contraindications, side effects, and the consequences if side effects developed. The appendix (also used at the hospital) is an extract from the information available on the drug used and enables the

Results

A total of 5200 follow up visits were made during the period studied, 3500 to general practitioners and 1700 to the outpatient clinic. In a total of 114 instances, 109 in general practice and five in the outpatient clinic, the follow up programme was not adhered to (table 1). For example, for 21 patients the interval between follow up visits was longer than one month—but in no case was it of consequence to

in monitoring the patients, and two thirds stated that the system had resulted in better contact with the patients and the specialist unit.

One advantage of the case record is that all relevant data are on one document and so arranged that the values for each investigation may easily be compared. General practitioners are kept up to date on the latest advances and principles in the treatment of rheumatoid arthritis. The rheumatology department has an accumulation of information that is recorded in a uniform way, which opens up the possibility of carrying out retrospective as well as prospective studies of large groups of patients.

A possible drawback of such a system is that the more people there are participating the greater the risk of mistakes, but the departures from the follow up programme were of no consequence to the patients. Default in follow up due to the patient may result in unacceptably long intervals between follow up visits of patients treated with potent drugs. A computer assisted system such as that used in the follow up of patients with thyroid disorders would surely help.⁵

The shuttle case record system is both effective and efficient.

Shuttle case record		Yes		No	
CENTRAL MEDICAL REGISTER NO.					
Surname		Family doctor's name and address (possibly shared)			
First name(s)					
Case record no.					
Treatment	Penicillamine	Gold sodium	Azathioprine		
Compulsory tests are marked by X					
Design, mg	ESR, mm/h	Haemoglobin			
	B (leucocytes $\times 10^9/l$)				
	B (neutrophils $\times 10^9/l$)				
	B (lymphocytes $\times 10^9/l$)				
	B (monocytes $\times 10^9/l$)				
	Serum creatinine ($\mu mol/l$)				
	Urine protein (mmol)				
	Urine microscopy				
	Erythrocytes				
	Leucocytes				
NSAID II					
Pharmacokinetic (mmol with X)					
No pain					
Severe pain					
Painfully disturbed (mmol with X)					
Course according to plan					
Comments					
Rheumatological					
Disease in remission					
In remission					
Comments					
Signature					

Shuttle case record for follow up of patients on antirheumatic treatment by the hospital and general practitioners. On the reverse side (not shown) there is space to record side effects, date, comments, and consequences.

general practitioner to monitor the patient.⁶⁻⁸ If side effects develop the general practitioner contacts the hospital and discusses the problem, and if necessary we see the patient either in the outpatient clinic or in the rheumatology department as soon as we think necessary. The shuttle case record does not replace either the hospital case records or the general practitioner's case notes, and it includes only the data that are necessary for a safe follow up of the patient. To get an idea of how the system worked in practice we invited 150 general practitioners to complete a questionnaire in April 1983.⁹ Replies were received from 125 (83%).

The patient—and the shuttle case record was unavailable at 29 of the 5200 visits. The frequency of side effects was lower than has been reported,¹⁰ and side effects occurred in 115 instances (table 11). Sixty seven instances were recorded in general practice, and in consultation with the rheumatology department dosage was reduced in eight cases, medication was temporarily withdrawn in 40 cases, and the drug was withdrawn in nine cases. In 10 cases side effects were overlooked by the general practitioner. The measures taken in the outpatient clinic were to reduce dosage in 11 cases, temporarily withdrawal medication in 28,

five minutes with the patient, 60 spent five to 10 minutes, 37 spent 10 to 20 minutes, and two spent more than 20 minutes. Two thirds of the general practitioners said that their contact with both the patients and the outpatient clinic had improved after the shuttle case record was introduced. Most preferred participating in the follow up of patients rather than leaving it entirely to the outpatient clinic (table 1V).

Discussion

The growing number of patients attending rheumatology departments and the use of potent antirheumatic drugs necessitating close observation of patients make heavy demands on outpatient services in rheumatology units. To relieve the pressure on our facilities and resources we found it expedient to engage general practitioners in monitoring these patients, using the shuttle case record as the link between us. This has two

major benefits. Firstly, it leaves us with more time for our primary task, which is diagnosis and treatment, and, secondly, the general practitioner maintains his role in treating and remaining in close contact with the patient.

The system also has financial benefits. It enables us to see and treat patients for a greater number of patients without using more finance, manpower, and facilities. The waiting list has been shortened so that treatment may be instituted earlier. Since many of the patients are disabled to a degree that prevents them from using public transport shortening the distance between home and follow up services has considerably reduced the costs of travel for patients. If all follow up visits had been made to the outpatient clinic the patients would have to travel an additional total of 600 000 km. For 26 patients who are still employed the shuttle case record system means fewer absences from work because of follow up visits to the outpatient clinic.

The frequency of side effects was lower than that reported elsewhere, but this might have been due to a selection bias of patients since if side effects developed treatment was sometimes stopped before a case record was established.

The system has worked reasonably well. It may be disquieting that 10 out of 26 cases of leucopenia and thrombocytopenia were overlooked, but all but one may be ascribed to minor variations in "normal range" for leucocytes and thrombocytes among the different laboratories. All 10 cases occurred in the first year after the case record was introduced and since then the normal ranges used by the laboratories and us have been brought into agreement and no such cases have been seen again. One serious case of leucopenia (2.5 $\times 10^9/l$) should have been seen immediately but was not until three weeks later when the patient was seen in outpatient.

It appeared from the questionnaire returned by 125 general practitioners that nearly all (92%) were in favour of participating

It might be used with advantage for other chronic diseases and might be a valuable tool in the research work done in general practice.

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Accepted 11 December 1984.

100 YEARS AGO

There is no feature about the recent dastardly outrages at Westminster and the Tower more surprising than the small amount of human sympathy and injury to individuals which was produced by them. We have ascertained, on inquiry at the Westminster Hospital, that even the policeman, Cole, who so gallantly carried off the explosive, and was, according to his own statement, in, within two or three feet of it when the explosion occurred, sustained injuries which can hardly be called serious. As was the case with the people injured by the explosion a year ago in the underground railway, temporary deafness, in all likelihood due to rupture of the tympanum, was one of the chief consequences; in some cases, too, there was an amount of shock out of proportion to the actual gross lesions sustained; this was probably due to a slight but extensive concussion of the brain and spinal cord, even in the policeman Cole, this concussion was not sufficient to produce insensibility. He is aged 43, and his comrades 42; they were admitted into the Westminster Hospital, under the care of Mr. Cowell, very shortly after the explosion; their faces and hands were black, and the hair and beard were filled with a black material, the hair being matted together. They were much torn, and their coats apparently burst through by the explosive force. Cox had the left leg of the trousers slit up nearly to the hip, whilst Cole had the brass lever from his coat-collar, bent across his chest. Both men stated that they have no recollection of anything after the explosion. Cole distinctly states that he remembers stooping forward to throw the parcel, which fell left, towards the Hall, then he saw a bright light, but he can recall no sound; and the next thing he remembers is finding himself in bed in the hospital. In Cox the period of forgetfulness appears to have been more prolonged; but, after admitted, neither of them was maimed, but both were stunned, and quite deaf. They were also cold, from the shock that they had received. Cole was suffering from considerable difficulty of breathing, and complained of severe pain in the left side. On examination, four ribs were found to be broken, the sixth, seventh, eighth, and ninth. There was no sign of concussion, and from the character of the fractures it is probable that they were produced either by the explosive force to which the front of his chest was exposed, or, as is more likely, by the other policeman falling upon him. Cole is slightly built, whilst Cox is tall and burly. There has certainly been no sign of wound of either the pelvis or the lung. Cox had a slight wound behind the left ear, over the mastoid portion of the temporal bone. A bruise over the right eye, and another on the left ankle. There seemed to have been no other injury. There were, however, slight signs of blood in both ears, and it is probable that both tympani were ruptured. His hearing, however, is rapidly recovering. There was no sign of bleeding in Cole's ears, although he was quite deaf when he was admitted; he gradually recovered his hearing in the left ear, but not in the right. Cole had a few bruises on his arms and legs. Cox suffered for about an hour after his admission from traumatic excitement. He struck out in all directions, and was with difficulty restrained, but by the time that Cole had had his broken ribs strapped and bandaged, he had quieted down. The notes on Monday showed that the men were still suffering from the effects of the shock. The temperature was but slightly raised. Cole's urine had a specific gravity of 1016; it was acid, with a trace of albumin and a small quantity of blood sufficient to discolor it. The pain in

the side was less, and he was fairly comfortable. Cox had a good deal of frontal and occipital headache. Mr. Cowell informs us that on Wednesday Jan 28th, both patients were free from pain and cheerful, could take food and sleep well, and that the temperature and urine in both cases were normal. The recovery of both will, he adds, probably be uninterrupted. "Cole has shown a pluck that in the army would have gained him the distinction of the Victoria Cross." The improvement above noted has continued. (*British Medical Journal* 1885; i:245.)

We are unwilling to obtain too much credit for the origin and development of "accidents," and therefore almost hesitate to offer a few remarks upon the most recently discovered mode of disease-distribution. Duty, however, compels us to point out that few more effective agencies for the scattering of *marasmus morbi* could be found more than the railway system, with its crowded carriages and waiting-rooms, wherein sick and sound, the infected and the susceptible, are brought into particularly close contact. A few days ago, public attention was excited, and the seeds of terror and scandal sown, by the rental of a narrative of very commonplace facts by a statement to the effect that the family of a master of a Highland railway-station had been infected by means of a box of clothes delivered by rail, and left at the station. For aught we know, other families have contributed to the cause of alarm. In any case, there is abundant opportunity for a striking series of sensational paragraphs; and it is likely enough that full advantage will be taken of the opportunity that offers itself for "improving the occasion." To what does it all come in the end? Simply this, that the fault lies not with the railway-companies or their official in any special degree—for they cannot possibly be expected to inquire into the health of the passengers—but with the public generally. A station-master having an infectious disease in his family is assuredly responsible for taking all such measures as can be taken to prevent the communication of the disease to passengers and others using the station. This is self-evident; but what, in the name of common-sense, is to be said of the stupidity and the culpability—we can use no less expressive terms—of those who, having been infected, and being in a condition to propagate infection, travel or send articles of their clothing up to them? When we come to follow this question of disease-distribution to its extremest point of detail, it is evident that the secret of "stamping out" and of "health-preservation" are distinctly personal. Public authorities and officials may do much by the enforcement of judicious rules and regulations, but it is in the observance of these rules, and in the working out of their principles into detail by individual effort and responsibility, that the secret of success lies. If the units of the population be honest and true, the sum total will be sound; but if the integers be defective, no integrity of the sociological-practical thought can be—can secure a satisfactory result. (*British Medical Journal* 1885; i:447.)