

The Inadequacies of Information on Current Drug Therapy in Out-Patients' Records

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It is well recognised that many out-patients do not take the drugs prescribed for them[1-3]. In our experience, a separate but related problem is that the hospital doctor may not know what medicines such patients have and/or what dosage they are (or may be) taking. The case notes usually serve as the primary source of information about current medication, except when patients bring their medicines at every visit. In particular, junior doctors, who change jobs often, rely heavily on the notes for their information about patients' therapy. We carried out a survey to examine the accuracy of the information about current medication contained in the case notes of medical out-patients.

Patients and Methods

An examination of 200 non-selected sets of case notes of patients attending our department's general medical follow-up clinic revealed that 43 per cent of the patients were believed to be taking three or more drugs. We studied a random sample of such patients. Our survey was carried out at two consecutive visits. Initially, patients' notes were examined independently by two doctors who each documented what they believed to be the drug treatment. One of these doctors then interviewed the patient and took a drug history, producing another version of the treatment regimen. A few days before their next visit patients were sent a postcard reminding them to bring all of their medicines. At that next visit each patient was interviewed with his drugs, thus producing a fourth (and final) version of the drug treatment. Allowing for any changes made at the first visit, or by the general practitioner between the two visits, this final version of the treatment regimen was compared with the versions obtained at the first visit. From the interviews and examination of the notes we also sought to discover why there were discrepancies between the various versions of the drug treatment.

Results

Sixty-eight patients were asked to bring their drugs. Seventeen either forgot to bring them or failed to attend

and one patient died before the second visit. Fifty patients were interviewed with their medicines. There were 26 men and 24 women; 28 patients were aged 65 or over (mean age 72) and 22 patients were under 65 (mean age 50 years). The results of the survey were little influenced by age or sex and are summarised in Table 1.

The versions of the drug regimen produced after two of us had independently studied the notes disagreed in 16 (32 per cent) of the 50 cases. The final version of the drug regimen, as determined by interviewing the patient with his or her medicines, differed from the same doctor's version based on the notes alone in 39 (78 per cent) of the cases and the version he produced after taking a drug history in 25 (50 per cent) of the cases. There were fewer discrepancies between the various versions of the treatment regimen among the patients ($n = 15$) making their first follow-up visit after leaving hospital, than among patients ($n = 35$) who had been coming to the clinic for some time.

Many of the discrepancies between what was believed to be the patient's current therapy, before or after taking the drug history, and what was established by seeing the medicines, resulted from patients taking additional drugs, most often benzodiazepines or minor analgesics. Also, patients often said they were taking a different dosage of some drug, e.g. a diuretic, from that recorded in their notes. In 8 (16 per cent) of the 50 cases, seeing the medicines revealed some major error or omission in the treatment regimen. These included a patient who produced tablets in a bottle labelled 'Digoxin' and more in a bottle labelled 'Lanoxin'—both of which she said she was taking (doubling the prescribed dose). One patient believed to be taking steroid therapy (prednisolone 10 mg/day) did not have any such tablets. Another patient was taking substantial doses of metoprolol and atenolol. The last time this patient had been issued a repeat prescription by his GP he had only received half his usual dose of nifedipine and his angina had worsened.

Discussion

We believe that several important messages can be drawn from the information revealed by our survey. First, there

Table 1. The more common discrepancies revealed on seeing the medicines. Of the patients, 6 had completely discontinued one or more drugs shown as current treatment in their case notes and 4 were using an alternative drug (e.g. a different β -blocker) to one of those shown in the notes.

	Patients No. (%)	Not revealed in case notes	Not revealed in drug history	
		Drugs most often involved (no. of patients)	Patients No. (%)	Most important drugs involved (no. of patients)
Taking additional drugs—	30 (60)	benzodiazepines (6) other hypnotics (3) paracetamol—	17 (34)	β -blockers (2) NSAIDS (2) digoxin (2)
1 additional	16	alone (5)	13	
2 additional	7	+ dextropropoxyphene (2)	3	
3 additional	5	NSAIDS (4)	1	
4 additional	1			
5 additional	1			
Taking different doses	14 (28)	furosemide (3) spironolactone (3) β -blockers (2)	6 (12)	digoxin (1) nifedipine (1)

appeared to be some major error or omission in the treatment of more than one patient in ten. Second, while many of the discrepancies between what was believed to be the drug therapy and what was established by seeing the medicines might be considered trivial, we feel that some of these discrepancies must, at least, reflect unnecessary prescribing. Third, the patients concerned may be at risk of suffering the consequences of unsuspected drug interactions. For example, two patients were taking digoxin without our knowledge, and in one of these cases this was not revealed by the drug history. Seeing the medicines revealed, for the first time, that another patient was taking a beta-blocker and that a patient being treated with bumetanide for severe heart failure was also taking indomethacin[4,5]. The hospital records showed seven of the 50 patients studied as taking benzodiazepines. Our survey revealed a further six who were taking benzodiazepines and three more who were using other hypnotics, including one taking Tuinal (amylobarbitone and quinalbarbitone). Prescott[6] has suggested that probably the most common and least well recognised example of polypharmacy as a major cause of drug toxicity is 'mutual potentiation of CNS depression by major and minor tranquilisers, antidepressants, analgesics, miscellaneous drugs, and alcohol'.

The main causes of the problems revealed in our survey appear to be the over-prescription of drugs and poor communication between doctor and doctor or doctor and patient. Indeed, as shown by the discrepancies between two doctors looking at the same set of notes, good communication is hampered by inadequate record-keeping.

For the hospital doctor treating out-patients with chronic illnesses the question 'Who is taking additional drugs?' should be added to the better known one 'Who is taking their tablets?'. While accurate details of drug therapy had been promptly sent to the GPs of all but one of the recently discharged patients in our survey, several patients said it had never been made clear to them whether or not they were meant to continue a particular

treatment after the tablets supplied on leaving hospital ran out. In three of the 15 patients who had recently left hospital it appeared that the GP had prescribed part or all of the pre-hospitalisation drug regimen when the patient went for a new prescription. The notes and letters from the out-patient clinic tended to mention changes in therapy but not the whole drug regimen. This caused difficulties in interpretation of the hospital records (of drug therapy) in one case in three. Presumably it also caused problems for the GPs. The 'system' for out-patient care in Britain does not usually include GPs letting the hospital doctors know when they make changes in the drug treatment. In the case of four of our patients the GP had very recently changed the prescription without either the GP or the patient informing the hospital doctor.

We also believe that our findings have important implications for those who are interested in improving patient compliance and for doctors carrying out clinical trials. It appears that when a patient is found not to be taking the treatment recorded in the notes, the fault lies in many cases with the hospital doctor(s) or GP and not with the ('non-compliant') patient. In many clinical trials the investigators seek to exclude the possible effects of co-medication. Information on this is often taken directly from the patients' records. If our clinic is representative, and we believe it is, such information may be highly inaccurate.

The recent report *Medication for the Elderly* from the Royal College of Physicians[7] made sound recommendations for minimising the problems of non-compliance, drug interaction and adverse effects by improving prescribing habits. We agree with the view[8] that the medical profession as a whole is not making the best use of the excellent drugs available and our survey highlights another area of special concern. It appears that hospital out-patients with chronic illnesses requiring long-term medication are, like the elderly[7], placed at risk by excessive prescribing and inadequate supervision of treatment.

The care of out-patients might be improved by having all patients carry cards, as presently carried by patients on steroids, which show their current treatment. However, doctors and patients would have to ensure that the cards were kept up to date. When we occasionally encounter patients who carry such cards, this is rarely the case. In the short term we see little alternative to the suggestion that patients should be asked to bring all their medicines at every visit[9].

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continued from page 218

FRS, Physician to Her Late Majesty, Queen Caroline. The Croonian Lectures at the Royal College of Physicians were not begun until 1749, Dr Thomas Lawrence being the lecturer in the first four years, it having been decided that they should be given by the most senior Fellow, after the President and Elects, willing to give them. Lawrence was Samuel Johnson's doctor and Registrar of the College for 20 years before being elected President in 1762. The Croonian Sermons at St Mary-le-Bow also began in 1749 and were given every year until the outbreak of the Second World War, when they were discontinued; a wise decision, for the church of St Mary-le-Bow was hit by bombs five times in air raids, the fifth assault virtually destroying the church. It has been magnificently restored, as it was three centuries ago by Wren after its destruction in the Great Fire, and the sermons

were resumed in 1970 when the Reverend Joseph McCullagh was Rector. He used them as one of his weekly lunch-time discussions when he stood in one pulpit with someone of note or notoriety in the other, and they talked of matters by no means always evangelical.

The trustees sold the freehold of the site of the King's Head Tavern to the Corporation of the City of London in 1915 and the building has long been demolished, disciples of William Croone no longer repairing there to take the wine which maketh glad the heart of man. All that remains of Croone are a splendid portrait by Mary Beale, given to the College by his godson, Dr William Woodford, Regius Professor at Oxford, the Croonian Lecture and Sermon, the books he donated to the College, and the Sadleir Trust, which William Croone's 'sorrowful widdow' so generously made in his memory.

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