PRACTICE OBSERVED

Practice Research

Study of medicine prescribing for elderly patients

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Abstract

An analysis of drug prescribing over six months in a random sample of 146 elderly patients showed that 42% were receiving one or more medicines long term. Diuretics, analgesics, and non-steroidal anti-inflammatory drugs were most often prescribed, and variations in prescribing by age, sex, and consultations with the general practitioner were examined. Only 17% of the group were taking three or more medicines on repeat prescriptions, and 42% received no prescriptions during the study. These results have implications for the workload of supervising prescriptions but also underline the need for a balanced view of drug prescribing and medicine taking in elderly people.

Introduction

For elderly patients, more than for patients in other age groups, growth in the availability of drug treatments has been a double edged sword, and a recent report from the Royal College of Physicians has reminded doctors of the problems associated with inappropriate and excessive prescribing for older patients.[1] Dunnell and Cartwright found that 92% of patients aged over 75 had taken at least one medicine in the two weeks before their survey, and up to half of all older patients were taking at least one medicine long term.[2] Similar results were found in two studies in general practice.[3,4] The results of an unpublished study of long term diuretic prescribing for the elderly in a university department practice showed a similar order of repeat prescribing, but it also appeared that many older patients were receiving few or no prescription medicines.

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This paper reports the results of a study designed to provide detailed information on the distribution of all medicine prescribing for a random sample of older patients during a six month period.

Background

Aldermoor Health Centre has a National Health Service practice of just over 8000 patients (10% are aged 65 and over) and is staffed by members of the primary medical care department of the university. Current research activities include the effect of a restricted drug list on the prescribing patterns of the doctors. This is not a rigid list but provides recommendations on prescribing for common conditions based on pharmacological and economic factors.

Method and results

A 20% random sample of all patients aged 65 and over was obtained from the practice age-sex register, and details of the medicines prescribed and the number of repeat and single prescriptions were collected manually from their records for the six months April to September 1984 inclusive. The total number of contacts with the general practitioner in the surgery and home for each patient for the 11 months January to November 1984 was also noted. A repeat prescription was defined as the same medicine issued on two or more occasions as continuous treatment for a chronic problem; for example, two prescriptions for 100 g of steroid cream in a patient with eczema were defined as repeat prescriptions, but two prescriptions for prednisolone during the six months for exacerbations of bronchial asthma were not.

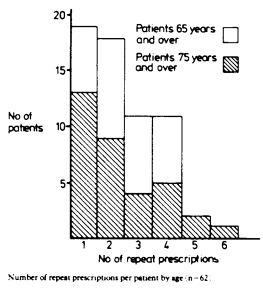
Study group—The 20% random sample produced 161 patients, of whom 12 had left the practice and three had died, leaving 146 patients. The female to male ratio was 1·7 (ages 65-74: 32 men, 38 women; age 75 and over: 23 men, 53 women) compared with 1·5 for all elderly patients in the practice. Patients in the older age band were overrepresented, with a ratio of 65-74 years to 75 years and over of 0·9 compared with 1·3 for the practice.

Number of prescribed medicines—Sixty two patients had received at least one repeat prescription, 61 no prescribed medicines at all, and only 23 at least one single prescription but no repeat medicines over the six months (table I). The 62 patients had received repeat prescriptions for 148 drugs, an average of 2·4 per patient, with only three taking five or more prescription medicines regularly (figure). Some patients on repeat prescription had also inflammatory drugs (eight), analgesics (seven), topical steroids (seven), oral steroids (three), laxatives (two), antihistamines (two), and miscellaneous (10).

Drug prescribing and consulting patterns—Almost half of the patients on repeat prescriptions were seen five or more times in the first 11 months of 1984, and there was an inverse relation between receiving no prescribed medicines and the number of consultations with the general practitioner (table III). The distribution of single prescriptions did not seem to be related to consultation rates.

TABLE I—*Numbers of patients who received repeat prescriptions, single prescriptions only, and no prescriptions from April to September 1984, by age and sex*

	Repeat prescription	Single prescription	No prescription	Total
Men				
65-75 years	16	5	11	32
75 years and over	9	5	21	35
Women				
65-74 years	12	7	19	38
75 years and over	25	8	20	53
Total	62 (42%)	25 (16%)	61 (42%)	146 (100%)



Number of repeat prescriptions per patient by age (n=62).

TABLE II—*Drugs prescribed by repeat prescription*

Type of drug	No of prescriptions
Diuretics	16
Analgesics	15
Non-steroidal anti-inflammatory	15
Bronchodilator inhalers	11
Cardiac β blockers 6, digoxin 3, and vasodilator 1	10
Steroid inhalers	9
Antidepressants (lithium 3	8
Hypnotics	6
Oral steroids	5
Antacids	5
Thyroxine	5
Laxatives	4
H_2 antagonists	3
Oral broncholidators	3
Antibiotics	3
Topical medicines: steroids 1, aqueous cream 1, and embrocation 1	3
Tranquillisers	3
Eye drops	3
Potassium supplements	3
Antiparkinsonian	3
Oral hypoglycaemics	3
Quinine bisulphate	3
Antiplatelet	2
Sodium cromoglycate	2
Miscellaneous: all one type only	8
Total	147

received single prescriptions, but the small total numbers (64) made it difficult to interpret the distribution. There was, however, no apparent tendency for those on higher numbers of repeat prescriptions to be receiving a disproportionately greater number of single prescriptions.

Types of prescribed medicines—Almost half the medicines prescribed as a repeat were for diuretics, inhalers (bronchodilator and steroid) for asthma, analgesics, non-steroidal anti-inflammatory drugs, and cardiac drugs (table II). Only 17 (11%) prescriptions were for psychotropic drugs. The 64 single prescriptions were for diuretics (13), antibiotics (12), non-steroidal anti-

TABLE III—*Distribution of prescribing by number of consultations with general practitioner (surgery plus home) during January to November 1984 inclusive (n=146)*

No of consultations with general practitioner	Repeat prescriptions	Single prescriptions	No prescriptions
0	5	0	27
1	9	4	12
2	6	2	10
3	8	5	3
4	7	3	1
5	5	1	2
>5	22	9	4
Total	62	23	61

Discussion

The results of any study in one practice may be generalised only with caution, and the particular features of this practice that were mentioned earlier might be expected to produce atypical findings. Nevertheless, the figure of 42% of the study group receiving repeat prescriptions agrees with findings in several other studies,[2,4] and an average of 2·4 medicines for elderly patients issued on repeat prescriptions matches the findings of 2·7 by Tulloch[4] and 2·14 by Gosney and Tallis.[3]

The frequency of repeat and single prescriptions issued for diuretics, analgesics, non-steroidal anti-inflammatory agents, and cardiac drugs is similar to that in previous studies,[2,3,4] though psychotropic drugs were prescribed much less than in some earlier studies.[4] The frequency of issuing prescriptions for inhalers probably reflects recent advances in the treatment of asthma, a particular interest of one of the staff at this practice.

Previous studies tended to concentrate on elderly patients who took prescribed medicines, but the results of this study show that many were either taking no medicines or very few as single or repeat prescriptions over the six months. Fifty-eight per cent of the study group received no repeat prescriptions compared with 69% of the elderly patients in Martys's practice, who did not take medicines for longer than a month.[5] This has implications for an unfounded view of prescribing and medicine taking in this age group. Only a few patients were taking a great many medicines long term, and the most commonly prescribed medicines were for pain or vascular problems—perhaps not unreasonable in older patients. Murdoch has pointed out that we should expect some older patients to require drug treatment.[7]

There was no indication from the data on repeat and single prescriptions that in these elderly patients the problems they presented with or contact with the doctor led invariably to a prescription being issued. Furthermore, the analysis of prescribing by attendance did not support the suggestions made by Balint and his colleagues that repeat prescribing could be used to minimise patient contact with the doctor.[8] A recent hospital study from Liverpool suggested that overprescribing in the elderly was more likely to originate in hospital than in general practice.[9]

The taking of non-prescribed medicines in this age group was not considered in this study, but it would be interesting to know if those patterns matched taking medicine by prescription. Though Dunnell and Cartwright found that 92% of patients aged 75 or more had taken at least one medicine in the two weeks before their interview,[2] this might have been as little as one dose of medicine, and the overall figure for all adults aged over 21 was 80%, with the lowest rate as high as 75% for the age group 21 to 24 years. Clearly, it is not reasonable to conclude from this information that elderly people have a disproportionately high intake of medicine compared with patients in other age groups.

The results have an important implication for the workload of supervising repeat prescribing in elderly patients—which is a reasonable expectation of adequate clinical care—because not all patients need to be supervised. For example, in this study only 25 patients were taking three or more medicines on repeat prescription, representing only 17% of all patients over the age of 65.

Elderly people are at particular risk from drug treatment, and acceptable standards of clinical care should include appropriate prescribing practices and the supervision of long term treatment. Justifiable concern, however, should be based on a balanced view of the problem of excessive and inappropriate prescribing for such patients, and examples that are extreme or apply to only a few patients must not be extrapolated to hide the large numbers of older patients who are neither frequent attenders nor on long term drug treatment. This is not only likely to overstate the problem of poor prescribing practices and medicine taking in elderly people but may unwittingly reinforce negative stereotypes of elderly people.[1]

I thank Diane Glackin for help in collecting information from patients' records and Jean Gibson for typing the manuscript.

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Accepted 28 January 1985

Computerised repeat prescriptions: simple system

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Abstract

In a small practice it is possible to develop a computer system for repeat prescriptions that requires little extra work and has other applications that may improve the quality of care of chronic conditions and promote the education of the general practitioner and his trainees. A program that can maintain a patient register, check milage and dispensing figures, prepare call up lists for inoculations, and search specific age groups for particular conditions, as well as provide a repeat prescription function, is described.

Introduction

Some early general practice repeat prescription systems offered little more than the facility to store details of continuing medication and print prescriptions either when required or in batches. Systems with a wider range of functions are sometimes installed with the intention of carrying out many other tasks but end up being used almost exclusively to print repeat prescriptions.

Modern systems are interactive. That is, details of any prescriptions printed are fed back into the patient's file and with a set of controls, warnings, and observations to staff and patients on the screen and the blank space of the FP10 (COMP) repeat prescribing is efficiently monitored. But these systems depend on consensus and tight discipline among doctors and their staff for any handwritten prescriptions will lead to a false indication of non-compliance.[1] The flexibility that is available on a card system to give, for example, larger or smaller amounts, early or late prescriptions, or allow for many other common exigencies becomes impaired. A Sheffield practice reported last year that it found these snags almost insuperable.[2] After several years' experience with a sophisticated operation supported by the Medical Research Council, the practice doubted whether a computerised repeat prescription function was necessarily more efficient or more reliable than a manual system.

It is hard to improve on the accessibility of the information held, the ease of entry, and the "user friendliness" of the manual card system run by most well organised practices. Why not retain a card system that runs well and add a simple computerised back up that will print all the prescriptions (and labels if you dispense) and also keep data that enable additional monitoring of the prescribing plus an exciting range of other applications? We have a card system that fulfils all the functions expected of a good record, plus facilities for enhancing care and considerably extending audit, education, and research.[3]

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The practice

A singlehanded practice with a list of 1600 patients, dispensing for 900, in a village some 17 miles from the nearest community hospital and 40 miles from the district general hospital could be described as atypical. But with a normal incidence of chronic illness in a top heavy age structure, repeat prescribing is commensurate with that of a national average list. Exceptions are that fewer patients are on psychotropics (11 on daytime treatment and 28 taking hypnotics), and a larger number of patients are taking hypotensive drugs (94, which is 8% of those aged 40 to 65 years) as a result of screening.

Repeat prescribing is monitored by a card kept in the patients' records with letter codes for the items sanctioned, serial entries of dates and codes recording prescribing, and regularly updated months up to which a prescription is allowed without consultation. The necessity to revise frequently the "to be seen" month because of unscheduled consultations is a major problem with any system since these patients have a high incidence of intercurrent consultation and doctors are liable to omit making this change each time the patient is seen. Signing the prescription must therefore be accompanied by checks on the repeat card, of the prescription itself, and not infrequently of the patient's record. Attention to these details,

including firm guidance of new trainees and locums, ensures a smoothly running system. Our few queries from the pharmacist and the Prescription Pricing Authority are rarely about these prescriptions.

Nearly all prescriptions are for exactly one month's supply. This is an essential feature of the system both for the monthly printing of the prescriptions and for the monitoring of supplies.

Computerisation

During 1983 and 1984 back up computer files were set up on all patients. A somewhat outdated Commodore 4032 was chosen because its accompanying 8250 dual disk drive allowed an adequate sized record (255 bytes) on each patient to be held on a single 5¼ inch floppy disk. Programs were written personally but with regular help and advice from a professional programer.

Data held include the usual registration details plus telephone number, occupation, and social class. Records of infant and all tetanus inoculations, rubella vaccination and immunity, cervical smears, smoking, alcohol consumption, number of children, and current contraceptive method are entered. All blood pressures taken are recorded and the last three entries are held on file. Past or current illnesses of any long term importance are filed as a three figure morbidity code. Thus data on each patient are displayed in three successive screens, which are designated as the "registration page," the "health page," and the "morbidity page."

A prescription is a complicated set of instructions. My program has the usual set of dictionaries of item name, route, dose, form, frequency, special instructions, and quantity. These are necessary in order to file the seven codes for, for example, nifedipine capsules 10 mg, take, one, capsule, three times daily, after food, supply 90. The drug names dictionary lists different strength preparations separately—four entries for propranolol 10 mg, 40 mg, 80 mg, and 160 mg, for example—and holds a total of 368. The file currently holds details of 328 items for 253 patients.

Routine use

At the beginning of every month a printout of all repeat prescriptions is run. The fan fold forms are divided and their edgings removed. They are already in alphabetical order and are put, with alphabet index cards, in a box on the receptionist's desk. At the end of the month the unused prescriptions are checked by the receptionist. Those for any intermittent symptomatic treatment are destroyed. Some of the remaining prescriptions are only a few days overdue. If the records show a normally compliant history, or a glance at the appointment book confirms that they will attend shortly, the forms are destroyed. This usually leaves one or two patients whom the receptionist, in consultation with the doctor, contacts. Thus the patients on, for example, hypotensive drugs, digitalis, antidiabetic drugs, or hormone replacement treatment are regularly monitored.

The work in running this system is not great. Though the printout takes over two hours, this does not require supervision but needs to be run when the noise of the printer does not disturb the receptionist when telephone use is at its busiest. No breakdowns occur but the program (unlike some commercial systems) will restart at the right point in the file if, for instance, paper runs out. "Bursting" the perforations to remove the edgings is a boring task taking over an hour and could be done by a machine in a larger practice. Checking unused prescriptions at the end of the month takes the receptionist half an hour or so but decision making by the doctor on the few apparently non-compliant patients takes only a few minutes to complete.

Extras

Practice formularies are being increasingly used and a dispensing practice finds it financially prudent to minimise its range of alternative preparations. The drug dictionary is a formulary on which practice prescribing policies are based.

Simple searches for patients on any specified medication are frequently used as bases for audit, teaching material, and research. More complex audit of repeat prescribing is also possible but not the sophisticated cost analyses as reported by Difford.[3]

The advantage of holding a full range of demographic, health, morbidity, and prescribing information on one file is that searches across all these areas are facilitated. The ease with which I can search for, for example, nulliparous women aged 20 to 30 years with no record of rubella immunity and not taking an oral contraceptive is not always found with expensive commercial systems.

Other uses

Repeat prescribing is not the primary function of this system but merely one use that saves time, increases efficiency, enhances patient care, and facilitates data retrieval. Since 1983 it has been in regular use in both audit and education and to perform routine practice work. The following is a list of functions, in addition to repeat prescriptions, that are regularly performed.

We maintain a patient register and check this against that held by the family practitioner committee.

We check milages and dispensing list figures with the family practitioner committee.

We list inoculations held on all infants and an "inoculation now overdue" list to check against health visitor records.

We prepare call up lists for infant inoculations.

We search specified age groups, list details, print call up letters, and print envelope labels for patients with: (*a*) no rubella vaccination record (for early teenagers); (*b*) no rubella immunity record; (*c*) no cervical smear record in any specified period; (*d*) no blood pressure record in any specified period.

We list patients with hypertension who have not attended in the previous three months, the practice standard.

Updating the file

Most items of information held on file are subject to change. Although this system is largely protected against the well known "garbage in—garbage out" syndrome by program routines that validate data entries, it is subject to what might be termed a "stale garbage" risk. Any doctor working here is asked to notify changes and it is quite practicable in this small practice for me to supervise this personally. A larger practice would need to give this task to a specified staff member who would work from "encounter forms" or the records themselves.

Routine work by the secretary to update the files takes no more than 15 to 30 minutes a day but other computer work may occupy several hours a week.

Discussion

We can all think of examples of machines that offer complicated facilities but which remain unused. Computers, by their very nature, are at risk of being used in ever more complex systems, sometimes for commercial reasons, and become overdeveloped for the average user. Perhaps this is one reason why so few practices have so far taken up what can be, at the least, a most effective labour saving device.

Of those practices using computers, a substantial minority use self written programs. Though scorned by the professional as "reinventors of the wheel," these practitioners know their own requirements better than anyone and no programs are more dedicated to specific uses than theirs.

In describing the uses of the system I have developed, I hope to add confidence and encouragement to the work of other such enthusiasts who find value in a small system. As Schumacher wrote, "It is necessary to insist on the virtue of smallness—where this applies."[4]

I am grateful to Dr Alan Binnie for his help in preparing this paper, to my practice staff who coped in good humour with the introduction of the computer, and to my family who adjusted to sharing the home with a part time programer.

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Accepted 18 February 1985