

Influences on psychotropic drug prescription in a psychiatric service

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Prescriptions for psychotropic drugs for in-patients in the Dundee Psychiatric Service were studied for three five-month periods in 1991, 1992 and 1993 using computer data and drug sheets. Information about journal advertising and advice to doctors was obtained for the same period. A possible effect of journal advertising was detected in the first year but there was no further increase in the second year in the total of prescriptions. Information is presented of a similar survey in 1975 and 1976. A high proportion of prescriptions was for formulary drugs and doctors rated the *British National Formulary* as the strongest influence on their prescribing.

The prescription of drugs by doctors represents a major part of their professional activity. There are constant changes in knowledge and opinion about pharmacological treatment and also in the availability of various compounds and preparations.

Apart from their original education doctors are influenced in their prescribing by various factors. For example the pharmaceutical industry seeks to influence prescribing and concern has been expressed about this (Rawlins, 1984). Apart from the considerable cost of drug company representatives, advertising in journals and direct mail there is indirect marketing, for example financing meetings, courses and research. Doctors may not always be able to recognise the commercial pressures that bear on their therapeutic decisions.

Independent advice is available in publications such as the *Drug and Therapeutics Bulletin*, the *Prescribers Journal* and the *British National Formulary* but a shortfall in this field is perceived (Herxheimer, 1987). Hospital and practice formularies are increasingly used and these influence prescribing (Koch & Taylor, 1991). However, doctors' knowledge of drug costs is often deficient (Ryan *et al.* 1990). Other important influences include the views of colleagues (Linn & Davis, 1972), the requests of patients, and post-graduate education. The latter has been shown to be effective in some settings (Frazier *et al.* 1991).

The aim of the present study was to look at the influences on prescribing in a psychiatric service over a three-year period from 1991–1993 and

compare it with a similar survey carried out over a period of two years from 1975–1976. The survey concentrated on psychotropic prescribing, as these drugs represent the main forms of attention for this patient group and are the area where psychiatric practice is likely to have most influence on community prescribing.

The study

The Dundee Psychiatric Service provides for a population of approximately 180 000. Information was collected for the periods 15 January 1991 to 15 June 1991, 15 January 1992 to 15 June 1992, and 15 January 1993 to 15 June 1993. Prescribing information had been routinely collected on a computer in the Drug Monitoring Unit. Only psychotropic drugs were included in this survey; anticonvulsants were excluded. The survey included all mentally ill in-patients, but excluded the mental handicap service.

Copies of all prescription sheets are collected in the Drug Monitoring Unit when the patient is discharged (a flimsy copy is made routinely by the use of double sheets). Apart from this all the drug sheets of long-stay patients are rewritten every six months as part of the simulated discharge system introduced to promote prescription review, so a cross-section of drug use for hospital in-patients is obtained. For each prescription the following information was retrieved: medicine, dose, date of starting and stopping the drug. If a prescription was repeated the change of date was not counted again, and once only and 'as required' prescriptions were included.

Information about advertising was taken from the *British Medical Journal*, the *Lancet* and the *British Journal of Psychiatry*. For each psychotropic drug the number of advertisements for 1991, 1992 and 1993 were counted.

With regard to independent drug information the *Drug and Therapeutics Bulletin* and *Prescribers Journal* were analysed over the same three-year period. Relevant articles were searched for references to psychotropic drugs and drugs

Table 1. Questionnaire to doctors concerning perceived influences on prescription

| Prescribing influence | Degree of influence | | | |
|--|---------------------|------------|----------|------------|
| | Very much | Moderately | Slightly | Not at all |
| <i>British National Formulary</i> | 23 | 8 | 0 | 0 |
| Monthly Index of Medical Specialities (MIMS) | 1 | 3 | 16 | 11 |
| <i>Drug & Therapeutics Bulletin</i> | 0 | 17 | 11 | 3 |
| Hospital formulary | 6 | 9 | 11 | 5 |
| Research papers | 4 | 12 | 10 | 5 |
| Postgraduate meetings | 5 | 13 | 12 | 1 |
| Drug representatives | 0 | 4 | 18 | 9 |
| Advertisements | 0 | 1 | 10 | 20 |
| Patient request | 1 | 10 | 15 | 5 |
| Cost | 2 | 16 | 13 | 0 |
| Colleagues' opinions | 10 | 17 | 3 | 1 |

were placed in the categories of 'recommended' and 'other'. The main criteria for recommendation were efficacy in comparison to traditional treatment although adverse reactions and costs were also considered. Drugs in the 'other' category were recorded as having no particular advantages over older treatments.

The hospital formulary of recommended first line psychotropic drugs was also reviewed in relation to drug prescription. At the time of the survey the formulary included: amitriptyline, dothiepin, imipramine, lithium carbonate, lofepramine, trazodone, chlorpromazine, flupenthixol, fluphenazine decanoate, haloperidol, thioridazine, trifluoperazine, chloral hydrate, diazepam, nitrazepam, oxazepam and temazepam.

A standard questionnaire was sent to all 34 doctors working in the service in 1992 and 31 replied. They were asked to rate influences on their prescriptions under the headings described in Table 1.

Previous data

The 1991 to 1993 information was compared with data collected in 1975 and 1976. Information for a three-month period from January to March 1975 and January to March 1976 was available from the Central Health Board mainframe computer. Information had also been obtained from drug advertisements for a 15-month period from 1st January 1975 to 31 March 1976. On this occasion the journals included the *British Medical Journal*, the *British Journal of Psychiatry*, the *British Journal of Hospital Medicine* and *World Medicine* as well as mailed items to one consultant psychiatrist.

Findings

The totals for drug prescriptions were 2741 (1991), 2634 (1992) and 2540 (1993). Anti-

depressant totals were 355, 366 and 321 in the three successive years, and neuroleptics 1737, 1681 and 1716. The totals for anxiolytics/hypnotics were 649 (361), 587 (319) and 503 (240), the figure for hypnotics appearing in brackets.

Advertised drugs

In 1991, 452 (16.5%) of the prescribed drugs as counted by the number of prescriptions were advertised. In 1992, 596 (22.6%) and in 1993, 562 (22.1%) were advertised. The increase in advertised drugs between 1991 and 1992 was statistically significant ($P < 0.0001$). Anti-depressants were the most frequently advertised drugs and the proportions of prescriptions were 47.3%, 54.4% and 59.8% in the three years.

The changes in prescriptions for individual drugs over the period 1991 to 1993 are shown in Table 2. Advertised drugs are more likely to show an increase in prescription than non-advertised drugs over the two-year period ($P < 0.01$) although the effect appeared to be concentrated in the first year. Of the ten advertised drugs showing an increase, the mean change was 20.4 prescriptions whereas the mean change for non-advertised drugs was 3.7 prescriptions from 1991 to 1993. The drugs showing an increase of more than ten prescriptions were

Table 2. Changes in advertised drug prescriptions 1991-1993

| | Total number of different drugs | Drugs showing an increase in prescriptions | |
|----------------|---------------------------------|--|----------|
| | | 1992 | 1993 |
| Advertised | 19 | 12 (63%) | 10 (53%) |
| Not advertised | 42 | 12 (28%) | 6 (14%) |

all advertised and these were zuclopenthixol decanoate (73 prescriptions), paroxetine (54), haloperidol (28) and sertraline (11).

Hospital formulary

The psychotropic formulary of the Dundee Psychiatric Service consists of drugs recommended for first-line use and does not aim to cover all clinical situations. The proportion of prescribed psychotropic drugs in the formulary was 86.3% in 1991, 87.5% in 1992 and 85.8% in 1993.

Drugs recommended in 'impartial publications'

Eleven drugs were classified as 'recommended' and four showed an increase in prescriptions by an average of 18 prescriptions. Of the eight drugs classified as having no particular advantages in the reviews in 'impartial publications' none had more recorded prescriptions in 1993 than 1991. Forty psychotropic drugs were not mentioned in these publications during the study period and of these 14 showed an increase in use.

Questionnaire to doctors

The questionnaire was returned by 31 of the 34 medical staff (Table 1). The *British National Formulary* was cited as being a major influence more frequently than any other factor, being perceived as a strong influence by 23 doctors.

1975-1976 survey

In the 15-month period there were 324 recorded advertisements for antidepressants, 205 for neuroleptics, 225 for anxiolytics and hypnotics and 64 for 'cerebral vasodilators'. The total of prescriptions for drugs which were not advertised fell from 253 to 197 between the first and second three-months period (one year apart). The number of prescriptions for advertised drugs rose from 802 in the first period to 845 in the second report ($P < 0.01$). The mean cost of advertised drugs per 100 tablets of the usual strength was £2.75 at this time as opposed to £1.66 per 100 for non-advertised drugs. Out-patient recommendations were also reviewed and in 1975 only 11 non-advertised drugs were recommended whereas in 1976, 10 were recommended. The corresponding figures for advertised drugs were 58 and 64 in the two periods.

Comment

This was a limited study so only tentative conclusions are possible. We were not able to

obtain information for some important influences such as the number of visits by drug company representatives. This is difficult to achieve and some doctors do not see them at all, but this would be desirable in a future survey. Nevertheless, journal advertising is likely to reflect the companies' current marketing strategy and two of the journals surveyed were taken by most doctors. Some of the changes in individual drug prescriptions are very small, so one should not draw firm conclusions about particular compounds.

The prescribing information only relates to one service so it is not certain that these findings can be generalised. The Dundee Psychiatric Service has a tradition of careful prescribing but there is no reason to believe it is atypical. The periods studied were also relatively short and the figures relate mainly to in-patient prescribing. The analysis of what constituted a recommendation in the impartial information was to some degree subjective.

The overall picture of psychotropic prescribing did not change greatly over the study period. Only a minority of prescriptions were for drugs that were advertised, although the proportion was higher for antidepressants.

The proportion of advertised drugs prescribed increased significantly from 1991 to 1992 when the total number of prescriptions was counted but there was no further increase from 1992 to 1993. Over the whole study period advertised drugs were significantly more likely to show an increase in prescriptions than non-advertised drugs. This raises the possibility that advertising may have an influence on prescribing but it is not necessarily causal, particularly in view of the lack of a further change in total prescriptions in the second year, and the relatively small changes in some of the prescription totals.

As expected the advertised drugs tended to be the newer agents. Zopiclone was the only hypnotic advertised and 76% of the antidepressant advertisements were for the newer selective serotonin reuptake inhibitors (SSRIs). If certain new drugs are seen to have clinical advantages an increase in prescriptions would be expected.

The finding is similar to the 1975-1976 information when there was a significant increase in the proportion of advertised drugs, although we cannot be certain that this was a causal effect. The information was not collected in quite the same way, different journals were used and mailed advertising was included - this latter was very much less frequently used at the time of the second survey.

The high proportion of hospital formulary prescriptions is gratifying although it is difficult to know how direct an influence this was. The majority of staff did not regard the hospital formulary as being a major influence, perhaps

because it was agreed locally and to some extent followed current prescribing practice. It should be noted that the bulk of prescriptions were accounted for by relatively few drugs. The information about 'impartial publications' is limited and difficult to interpret, although of those mentioned only those in the 'recommended' category showed an increase which raises the possibility of an influence.

The doctors' response to the questionnaire showed the *British National Formulary* as the most important perceived influence on prescribing; the *Drug and Therapeutics Bulletin* was less important (it is distributed free to all medical staff). Drug company representatives and advertisements were seen as less influential. However, doctors' views may not represent the reality of this situation as much advertising is very subtle and it is difficult to be aware of all the influences on one's behaviour. The study did not attempt to measure the quality of prescribing in terms of outcomes, so it is not possible to comment on any likely effects of the various factors on these.

In conclusion, this survey suggested a move towards advertised drugs but this did not continue throughout the study period, and was not necessarily cause and effect. The proportion of formulary drugs used and the views of the doctors were reassuring but a lot more information is required to reach more definite conclusions.

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