Administration of antirheumatic drugs

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Wright, V., and Hopkins, S. (1976). Annals of the Rheumatic Diseases, 35, 174-176. Administration of antirheumatic drugs. A study of 200 rheumatic patients attending an outpatient clinic and 72 general practitioners (GPs) was undertaken in relation to the administration of antirheumatic drugs. (1) Both patients and GPs agreed that effectiveness, absence of toxicity, and once daily administration were the important features of administration. (2) Significant differences between GPs and patients were noted in that patients more frequently preferred capsules than tablets. (3) GPs thought red was the best colour for an antirheumatic tablet, whereas patients thought white, this opinion being partly determined by the possible confusion of red tablets with sweets by children. (4) In a survey of 174 outpatients with rheumatic diseases, those with rheumatoid arthritis did not like blister packaging. A detailed assessment of 30 patients with rheumatoid arthritis in hospital confirmed this. Patients with moderate or severe rheumatoid disease of the hands often could not extract tablets from blister packs. Those who could found the packs difficult to open, the tablets broke, and came out suddenly, falling to the floor.

There are good reasons to believe that patients with rheumatic disorders do not take the regimen of medication at home prescribed by their physicians (Sasisekhar and others, 1973). It may well be that the mode of administration of antirheumatic drugs influences the regularity of taking them at home, but little is known about the problems patients experience. Moreover, there is evidence that presentation of the preparation (e.g. its colour and shape) may influence the response of patients (Schapira and others, 1970; Schiff, Murphy, and Anderson, 1975; Huskisson, 1974). Since few data are available on this problem, the present study was undertaken to ascertain important factors in drug administration from the views of patients and general practitioners.

Material and methods

200 rheumatic patients attending the Rheumatology Out-Patient Clinic at Leeds answered a questionnaire about the features of antirheumatic medication they considered desirable in terms of the effect, cost, presentation, mode, and frequency of administration of the drug, scoring each attribute from 0 to 10. They were then asked the colour of the tablet for the antirheumatic preparation they considered to be most valuable. Finally, they were asked to place in a ranking order the four attributes they considered most important. An identical questionnaire was answered by 72 general practitioners (GPs) attending small group seminars in the area.

In a separate study 174 outpatients were questioned about the use of blister packs as a means of packaging antirheumatic drugs. A further 30 patients with rheumatoid arthritis in hospital were studied to ascertain the ease with which they could manipulate two types of blister packs: one containing aspirin enseals and the other containing oxyphenonium (a smaller tablet).

Results

The mean scores of patients and GPs are shown in Table I. Statistically significant differences were found between the scores of GPs and patients for once daily administration, solubility, and presentation by capsules, tablets, and suppositories. Scores of over 65% were taken to indicate attributes of major importance. Both patients and GPs agreed on effectiveness, absence of toxicity, and once daily administration. However, patients thought that capsule presentation was also important, whereas GPs felt that palatability, cheapness, and twice daily administration were important. A score of less than 35% was taken to indicate attributes of little importance. Both patients and GPs thought that shape and colour were unimportant. Patients gave a low score to suppositories, whereas doctors gave low scores to four times daily administration and capsules. One striking contrast is that patients rated capsules as of major importance, while GPs rated them of minor importance.
Table I  Mean (±SD) score of various attributes among patients and general practitioners

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Patients (±SD)</th>
<th>GPs (±SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soluble</td>
<td>6.8 ± 2.9</td>
<td>4.9 ± 2.6</td>
</tr>
<tr>
<td>Cheap</td>
<td>6.8 ± 2.6</td>
<td>7.4 ± 2.3</td>
</tr>
<tr>
<td>Container</td>
<td>6.5 ± 2.8</td>
<td>3.8 ± 2.4</td>
</tr>
<tr>
<td>Capsule</td>
<td>7.9 ± 8.1</td>
<td>4.6 ± 2.5</td>
</tr>
<tr>
<td>Tablet</td>
<td>6.5 ± 2.2</td>
<td>4.7 ± 2.5</td>
</tr>
<tr>
<td>Liquid</td>
<td>5.4 ± 2.5</td>
<td>4.7 ± 2.2</td>
</tr>
<tr>
<td>Suppository</td>
<td>7.1 ± 2.8</td>
<td>4.4 ± 3.3</td>
</tr>
<tr>
<td>Coating</td>
<td>6.7 ± 2.6</td>
<td>4.7 ± 2.5</td>
</tr>
<tr>
<td>Palatable</td>
<td>9.7 ± 1.1</td>
<td>9.8 ± 1.2</td>
</tr>
<tr>
<td>Shape</td>
<td>8.0 ± 8.4</td>
<td>7.5 ± 2.4</td>
</tr>
<tr>
<td>Toxicity</td>
<td>9.5 ± 1.5</td>
<td>9.1 ± 2.2</td>
</tr>
<tr>
<td>Once/day</td>
<td>8.0 ± 2.5</td>
<td>8.3 ± 6.1</td>
</tr>
<tr>
<td>Twice/day</td>
<td>7.0 ± 1.7</td>
<td>7.1 ± 1.9</td>
</tr>
<tr>
<td>Three times/day</td>
<td>6.0 ± 2.2</td>
<td>5.2 ± 2.0</td>
</tr>
<tr>
<td>Four times/day</td>
<td>4.5 ± 2.2</td>
<td>4.5 ± 7.0</td>
</tr>
<tr>
<td>Colour</td>
<td>5.0 ± 3.3</td>
<td>4.4 ± 3.0</td>
</tr>
</tbody>
</table>

importance. Where frequency of administration each day was concerned, the scores for patients and doctors were inversely proportional to the number of times administered daily.

COLOUR
The ranking for colour preference is shown in Table II. GPs ranked red as the best colour, whereas patients considered white to be the best. The major reason patients gave was that red tablets were too attractive to children and could be mistaken for sweets.

RANKING
In giving a ranking order to attributes GPs thought (1) effectiveness, (2) absence of toxicity, (3) cheapness; whereas patients thought (1) effectiveness, (2) absence of toxicity, (3) solubility. It is of interest that the ranking order did not entirely correspond with that obtained when scores were given.

BLISTER PACKS
A study of blister packs among outpatients showed that 47% had not used them. Of those who had used them, 36% did not like them, and 28% had no preference. When analysed by diagnosis, of 32 patients with rheumatoid arthritis who had attempted to use blister packs, 10 were unable to use them, and 6 did not like them (i.e. 50% could not or would not use them). Forty-nine patients with rheumatic disorders other than rheumatoid arthritis tried to use such packs, 5 of these were unable to do so, and 9 did not like them (i.e. 28% could not or would not use them). Patients disliked blister packs because they were difficult to open, the tablets broke, and thus came out suddenly falling to the floor.

In the inpatient study of blister packs it was found that a load of 26 Newtons was required to rupture a compartment of a pack of aspirin ensoles, while the smaller compartment containing oxyphenonium required a load of 21 Newtons to rupture. All of those with mild arthritic problems could manage the packs but none liked them. Six of those with moderate or severe involvement of the hands found the packs impossible to open. Most patients attacked them from the back, but all found them awkward. Some experienced a good deal of pain on pressure over the blister. Similar observations were made with the type of packaging used for suppositories, aspro, and solprin.

Discussion
It is important that medication be taken in appropriate dosage and at proper times. Drugs may earn a bad reputation in given diseases or individual patients because the dosage given is inadequate. For instance, many patients with rheumatoid arthritis have not received enough salicylates for them to be relieved symptomatically. It was thought important, therefore, that features which may influence the taking of medication should be examined, both from the points of view of the patient and the physician.

Both patients and GPs rated highly effectiveness, absence of toxicity, and once daily administration of drugs. Because of pressure from the DHSS, cheapness featured in the list of important factors for GPs, as did twice daily administration and palatability. When the patients’ and physicians’ opinions on frequency of administration were compared the scores were similar; once daily administration was most preferred, while four times daily administration was least preferred. This becomes relevant in considering the information distributed by the DHSS (1975) on drugs used in rheumatic diseases. In keeping with their usual practice, six preparations (soluble aspirin BP, ibuprofen, indomethacin, fenoprofen, ketoprofen, and naproxen) were compared on the basis of the cost of 100 tablets. Elsewhere we have shown that the more logical comparison of the usual recommended starting dose of each preparation yields both a difference in ordering cost and a narrowing of the gap between different preparations (Haslock and Wright, 1975). The DHSS approach also militates against preparations which require reduced tablet intake and less frequent dosage, although this study shows a
significant preference by both patients and general practitioners for less frequent administration.

The effectiveness of colour in marketing a preparation cannot be dismissed. Schapira and others (1970) showed in psychiatric patients that phobias were most improved by green tablets. Schiff and others (1975) found that white tablets improved muscular tension and pain significantly more than pink tablets, while triangular ones were better than round preparations in improving concentration. Recently Huskisson (1974) has shown that placebo tablets coloured red give the best response in rheumatic patients. This was the opinion of the GPs. Factors other than effectiveness sway patients, however. The colour preferred by patients was white because the red colour could too easily be confused with sweets by children. This has been verified experimentally and it has been shown that coloured sweets or tablets are preferred twice as commonly as white ones, red being the favourite (Jolly and Forrest, 1958; Grainger, 1958).

Although packaging did not rate highly in the scores given by patients, two separate studies of the use of blister packs showed the importance of packaging. Pharmacists understandably favour blister packs because of hygiene and ease of handling. In the study of outpatients over one-third of those who had used them liked them. Among patients with rheumatoid arthritis, however, the packs were distinctly unpopular. A more detailed study of 30 patients in hospital showed that those with moderate or severe disease of the hands often found blister packs impossible to use; moreover, when they could be used, often only the tablets on the outside of the pack could be pressed out. Other patients found them awkward and often experienced pain on pressing out the tablets. This seemed to apply to other sorts of packaging, such as that used for suppositories, for aspro, and solprin. One cannot, therefore, recommend blister pack presentation for antirheumatic drugs.

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