The Use of Prophylactic Drugs for Asthma in General Practice

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Good control of asthma frequently depends on the correct use of an appropriate prophylactic drug. Enquiries into the circumstances of deaths from asthma[1] suggested that such therapy is often under-used or not used at all in chronic unstable asthma. This has been confirmed in new hospital out-patient referrals; patients with asthma were either not prescribed prophylaxis[2] or used the agents irregularly[3], and supported by a limited study of adult asthma in a single London general practice[4]. These reports indicate a need for improving the care of asthma in the community.

Patients and Methods

In 1982-83 patients (aged 16-80 years) from five group practices in three cities in West Yorkshire were interviewed. Patients were selected by two methods: in one practice with a disease index asthmatics receiving drug therapy were included. In the other practices doctors recorded all asthmatics given a prescription for airflow obstruction during a two-month period. Patients were asked to attend their surgery for an interview during which a questionnaire was completed by one author A.G.W. (who worked independently of the practices). Disease severity was assessed by a symptom score (Table 1). This score was modified from a published daily diary for asthma assessment[5]. The patient was asked to grade day and night-time symptoms in the month before interview. Statistical analysis was by the standard chi-squared test.

Results

A total of 201 asthmatics (mean age 45 years, male:female 1:1) was interviewed; 134 (67 per cent) used either corticosteroids (inhaled or oral), sodium cromoglycate (SCG) or ketotifen; 32 (16 per cent) did not use these drugs despite a score of 2 or 3 for day or night-time symptoms.

| Table 1. Symptom score for asthma. |
|-------------------------------------|
| **Daytime**                         |
| 0 No wheeze. Able to do all activities. |
| 1 Slight wheeze. Able to do most activities. |
| 2 Moderate wheeze. Activities limited regularly by frequent wheeze. |
| 3 Severe wheeze. Activities constantly curtailed by wheeze. |
| **Night-time**                       |
| 0 No nocturnal wheeze.               |
| 1 Slight nocturnal wheeze. Woken occasionally (< once a week). |
| 2 Moderate nocturnal wheeze. Woken frequently (1-3 times a week). |
| 3 Severe nocturnal wheeze. Woken very frequently (>3 times a week). |

| Table 2. The number and percentage of patients using different types of prophylactic drug. |
|---------------------------------------------|
| Patients                                   | No. | % |
| Total patients                             | 201 |   |
| Total using prophylactic drugs             | 134 | 67 |
| Using inhaled corticosteroids (IC)         | 79  | 40 |
| — via an aerosol                           | 70  |   |
| — via a dry powder inhaler                 | 9   |   |
| Using sodium cromoglycate (SCG)            | 50  | 25 |
| — SCG Compound                             | 28  |   |
| — SCG Plain                                | 18  |   |
| — SCG aerosol                              | 4   |   |
| Using systemic corticosteroids (SC)        | 29  | 14 |
| Using Ketotifen                            | 3   | 1 |

The numbers of patients using prophylactic drugs are shown in Table 2: 26 patients (13 per cent) used combinations of drugs, including 15 (7 per cent) using inhaled corticosteroid (IC) and systemic corticosteroid (SC) and 8 (4 per cent) using IC and SCG.
Problems with the Use of Prophylactic Inhalers

Of 121 patients using prophylactic inhalers 13 (11 per cent) took treatment entirely on demand. The rest used regular treatment, but 23 (19 per cent) took extra doses on demand, 27 (22 per cent) omitted at least one prescribed dose daily and a further 9 (7 per cent) admitted to both errors. More patients using SCG compound took therapy on demand (either partially or totally) (18 of 28, 64 per cent) than those using SCG Plain (8 of 22, 36 per cent) (P<0.05).

When compared with those who never used prophylactic drugs on demand (60 of 76, 79 per cent), significantly fewer (P<0.01) patients using therapy on demand (totally or partially) understood the concept of a prophylactic drug (19 of 45, 42 per cent). In the first group the concept was understood by equal proportions of those who were fully compliant (37 of 49, 76 per cent) and those who omitted at least one treatment daily (23 of 27, 85 per cent).

Of 74 patients using aerosol IC or SCG, 10 (14 per cent) had doubtfully efficient and 4 (6 per cent) totally inefficient inhaler techniques[6].

Problems with Prescribing Prophylactic Inhalers

Fourteen compliant patients (12 per cent of prophylactic inhaler users) were prescribed below standard doses (<400μg beclomethasone dipropionate or equivalent, or <4 capsules SCG daily) and 19 (15 per cent only) standard doses, despite both groups having a score of 2 or 3 for day or night-time symptoms suggesting that additional therapy might have been beneficial. The prescribed daily dosage of IC and SCG are shown in Table 3.

Combining the problems of use and prescribing, 32 (26 per cent) patients using prophylactic inhalers had a score of 2 or 3 for day or night-time symptoms but all these patients had a poor inhaler technique, used therapy entirely on demand, omitted at least one treatment daily, or were compliant but were prescribed a below standard dose.

The Use of Systemic Corticosteroids

Twenty-nine (14 per cent) patients used regular SC; 12 (41 per cent) did not use IC and 8 (28 per cent) had never had IC at any time. Of the 29, 27 had been on continuous therapy for at least five years.

Table 3. The prescribed doses of inhaled corticosteroid and sodium cromoglycate (2 puffs being 100μg beclomethasone dipropionate or equivalent, 1 capsule being 20mg sodium cromoglycate or equivalent), and the number (%) of patients taking each dose.

| Drug                  | Unknown | 4 puffs | 6 puffs | 8 puffs | >8 puffs |
|-----------------------|---------|---------|---------|---------|---------|
|                       | 2 caps  | 3 caps  | 4 caps  |         |         |
| Inhaled corticosteroid| 3 (4%)  | 12 (17%)| 22 (32%)| 37 (54%)| 5 (7%)  |
| Sodium cromoglycate   | 3 (6%)  | 14 (28%)| 17 (34%)| 15 (30%)| 1 (2%)  |

Previous Out-patient Attendance

One hundred and forty-three (71 per cent) of the asthmatics had attended a hospital out-patient department at some time with chest symptoms and 52 (26 per cent) had attended within the previous year.

Discussion

Owing to the selection methods employed there was a bias in this study towards symptomatic asthmatics on regular drug treatment. Estimates of the prevalence of adult asthma in the community vary[7] but if a prevalence of 3 per cent is accepted, our study represents a selected sample of 23 per cent.

The importance of the general practitioner in the management of asthma is emphasised by the finding that only a quarter of patients had attended a hospital clinic in the previous year. With the advantage of continuity of care general practice management may be preferable[8] and therefore knowledge of the main therapeutic problems in the community is important.

SCG Compound was more popular than SCG Plain but there is little evidence to support the use of the combination preparation[9]. Frequent use on demand suggests that the immediate relief obtained by the isoprenaline in the compound may mean that patients are confused about the role of the drug[10].

Though standard doses are usually sufficient, some patients may improve on larger doses of SCG[11] and IC[12]. It is certainly difficult to defend the prescription of less than standard doses for patients with poorly controlled symptoms. Non-compliance was a major problem with prophylactic inhaler therapy and two main types were found: the use of treatment on demand and the omission of daily doses in an otherwise regular inhaler user. The latter type was not associated with a poor understanding of prophylactic therapy and this may explain why education may fail to improve compliance[13]. The prescription of less frequent daily dose regimes may be helpful in these circumstances.

The use of inhaled rather than systemic corticosteroids where possible is now established practice and 400μg of beclomethasone dipropionate and 7.5mg of prednisolone are considered to be roughly equivalent[14]. It was a surprise to find, therefore, that 41 per cent of those on SC did not use IC. It is likely that substantial reductions in the use of SC would be possible in these patients.
This survey indicates the occurrence of major problems in the use of prophylactic drugs for bronchial asthma in general practice, despite postgraduate education in this field promoted both by the profession and the pharmaceutical industry in recent years. Clearly this effort must be sustained and attempts made to encourage general practitioners, who have not done so, to attend relevant meetings. Apart from stressing the importance of the recognition of asthma, many general practitioners require re-education in the therapeutics of prophylactic drugs.

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the head-title on the first page; perhaps the title page in the copy that once belonged to Mr Patch was lacking, for that makes no mention of Vesalius.

When the Barber-Surgeons’ Company received their charter of incorporation in 1540, one of the tasks they concerned themselves with was the improvement of the teaching of anatomy. One of the the earliest Readers of Anatomy was John Caius, who is known to have lodged with Vesalius, when in Padua; and it has been suggested that Caius influenced Geminus to publish his manual of anatomy. That it was a success is apparent from the preface to the first English translation published in 1553. The text in the translation bears more resemblance to the Anatomie of Thomas Vicary, a Master of the united company, than to Vesalius. The translator was Nicholas Udall, well-known as the father of English comedy, and the author of Ralph Roister Doister; his translations of Erasmus had gained considerable renown. The translation was made because it ‘might greatly availe to ye knowlage of the unlatined Surgeons’. The second edition published in 1559 has two points of interest. In the new title is a portrait of Elizabeth, probably the first published after her accession; in the book itself are two additional woodcuts—seated nude figures of a man and woman—with movable flaps, capable of being lifted to expose the internal organs, one of the first examples of an illustration with movable flaps.

The value and success of the Compendious Anatomy quickly resulted in the publication of plagiarisms in England and on the continent, particularly those of Jacques Grevin and Jacob Bauman; but Geminus is never mentioned, and what reference is made to the source of borrowing is always to Vesalius. Nevertheless, the influence of Geminus continued to be felt for at least a century after the publication of his book. Truly has it been said: ‘Few plagiarisms have been flattered by so much imitation’.

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