Interpretation and expression of PEF

The potential dangers of asthma are not due simply to the degree of airflow obstruction but are also attributable to other factors, particularly the underlying mechanisms responsible. Furthermore, absolute values of PEF, except when they are so low as to be only just recordable, are an unreliable guide to the severity of airflow obstruction. One reason for this is that the range of PEF (or forced expiratory volume in 1 second and other indices of ventilatory capacity), is not "linear". For example, a difference of 100 l·min⁻¹ at the higher end of the range is of much less significance than it is at the lower end. While clearly a patient's observed values of PEF must be assessed by reference to his or her HPV, expressing them as percentages of HPV introduces its own problems of interpretation.

If doctors with wide experience of treating asthma sometimes find it difficult to interpret PEF, should it be expected of patients that they will be capable of making correct inferences about the state of their asthma and avoid the dangers that could occur as a result of their misinterpreting the significance of their measurement?

Feasibility

There should be no illusion about the amount of time that is necessary for instructing patients in the principles of self-management. Nevertheless, this may not be much greater than that required to give them adequate education about asthma and their treatment, and there is now general agreement that all patients (or parents of children) must understand the nature of their disease and the actions of the drugs that they are prescribed [2].

Types of peak-flow meters

In Britain and New Zealand, several types of instruments for measuring PEF have recently become prescribable. Whereas extensive experience over 15 years in the use of the Mini-Wright meter has established its reliability and accuracy, far less is known about the performance of other types of meter which have been introduced much more recently. Predicted values of PEF have been derived from studies which used the Wright meter; there is close agreement between the values obtained with it and those obtained with the Mini-Wright meter.

Summary and conclusions

Almost all patients with chronic asthma will derive benefit from self-measurement of PEF. Unquestionably, this is of value for educating patients about their disease and treatment, leading in turn to improved compliance. It will be several years before it becomes clear what proportion of patients are willing to manage their asthma themselves and are sufficiently competent in the interpretation of their measurement of PEF to do so safely.

It remains to be seen what effect greater use of PEF measurement by patients will have upon present levels of morbidity and mortality from asthma.

References


Educational programmes in asthmatics

H. Worth*

Despite the advances in the understanding of the pathogenic mechanisms, clinical assessment, and medical treatment of asthma, an increase of mortality and morbidity has been observed. This increase may reflect better recognition and reporting, a change in prevalence and severity, or both. It is clear from many reports, however, that good treatment is still being denied to many patients, especially those with limited access to medical care.

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asthmatic attack was found in 75% of the patients and in 69% of their general practitioners. From this retrospective inquiry it was concluded that closer overall supervision, including careful attention to patient education, is desirable. In addition, the potential for confusion in drug therapy arose when three or more different classes of antiasthmatic drugs were used. This has been found to be a significant risk factor in mortality. These findings as well as the time delay between the occurrence of a severe asthmatic attack and the initiation of emergency treatment [2] highlight the need for patient education in the area of drug therapy.

**Teaching items**

The aims of education programmes are to effectively manage asthma. They should enable asthmatic patients to analyze the degree of their airflow limitation at home continuously, to check the efficiency of their medical treatment, and to change their drug regimen with respect to the actual degree of airflow limitation on their own.

An effective teaching and treatment programme for asthmatics should include information about the disease, prevention and treatment of asthmatic attacks and bronchial infections, physiotherapy, and training of self-management of airflow limitation by the patients.

In asthma, there are essential technical skills to be learned, mainly the correct use of the metered-dose aerosol and regular measurements and documentations of the peak expiratory flow rate. This is much more a matter of demonstration, coaching, and practice than education.

**Methodological approaches**

Education programmes should be based on clear-cut teaching guidelines. The teacher should be a doctor, nurse, or perhaps a lay-member of the local branch of an asthmatic society. As long as the information is correct and certain guidelines are followed it will probably make no difference.

**Evaluation of existing programmes**

The evaluation of several education programmes for asthmatic children [3] revealed an increased knowledge of the asthmatic children about their disease, a reduction of school absenteeism, fewer severe attacks and fewer hospitalizations as well as a loss of the fear of acute attacks.

However, only a few patient-education programmes [3] for adults were sufficiently evaluated. Hilton et al. [4], demonstrated that an education programme based only on written information was not able to change self-management ability or asthma morbidity in trained asthmatics with respect to an untrained control group. Beasley et al. [5] were able to show that a simple self-management plan in the treatment of adult asthma revealed a substantial improvement in both subjective and objective measurements of asthma severity, with a significant reduction in nights woken, days lost from work, and requirement of oral corticosteroids.

Our own experience is based on a 1-year follow-up of 142 consecutively trained adult patients (age range, 2-66 years) with moderate to severe asthma 1 year before and 1 year after performing a 5-days course of our asthma teaching and treatment programme (ATTP).

Table 1 shows a significant reduction of hospitalizations, sick-leave days, and severe attacks with emergency treatments 1 year after passing the ATTP when compared with the period 1 year before. Also the number of nocturnal attacks within the 4 weeks preceding the re-evaluation significantly decreased as compared to the corresponding 1-month period before starting the ATTP.

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>before ATTP</th>
<th>after ATTP</th>
<th>p-value</th>
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<tr>
<td>Severe attacks: (attacks/patient/year)</td>
<td>132</td>
<td>4.4</td>
<td>1.9</td>
<td>0.02</td>
</tr>
<tr>
<td>Number of hospitalizations due to asthma</td>
<td>114</td>
<td>82</td>
<td>39</td>
<td>0.001</td>
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<tr>
<td>Number of hospital days due to asthma</td>
<td>114</td>
<td>1,197</td>
<td>479</td>
<td>0.0001</td>
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<td>Absenteeism from work due to asthma (57 employed patients):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of patients</td>
<td>40</td>
<td>29</td>
<td>67</td>
<td>0.04</td>
</tr>
<tr>
<td>Days absent from work</td>
<td>1,714</td>
<td>1,100</td>
<td>0.002</td>
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</tbody>
</table>
Conclusions

On the basis of the current evaluated education programmes for asthmatic adults and our own experience, it may be concluded that patient education including self-management skills may be a useful component in the long-term treatment of asthma. Due to education programmes the patient’s ability to react to changes in airflow limitation improved, thus reducing their fear of severe attacks. Thus, education programmes may diminish the severity of these attacks and decrease the disability of the patients. Through a reduction of emergency admissions, hospitalisations and sick leave days, efficient patient education programmes may contribute to decrease the cost of an often lifelong asthma treatment.

Prescription information leaflets for patients

S. Gibbs*

Despite the widespread prescription of medicines, patients’ knowledge about the drugs they take is limited. Awareness of potential side-effects of treatment is often particularly poor. Many patients feel that not enough is explained by doctors and pharmacists, but instructions given verbally are often forgotten or misunderstood. One solution might be to provide patients with information leaflets with their prescribed medicines. Surveys suggest that patients would welcome written information about the drugs they are prescribed [1].

Few patient-oriented leaflets have been available in the UK until recently. Those that were provided have been criticised for being either too complex or too simplistic. Detailed leaflets, available with preparations such as oral contraceptives, are not always easy for patients to understand, whereas leaflets which confine their advice to instructions the correct use of an inhaler, for example, may not provide patients with all the information they desire.

Over the past five years at Southampton we have studied the effects of giving patients written information about their prescribed medicines. We have developed a series of Prescription Information Leaflets (PILs) for patients. Our leaflets give information about six therapeutic groups of drugs, all of which are commonly prescribed in British general practice. One of these leaflets contains information about inhaled bronchodilators, which are indicated for the alleviation and the prevention of asthma attacks.

This paper describes the effects of our bronchodilator PIL on patients’ knowledge about their medicine, compliance with treatment and satisfaction with the information received.

References


Methods

The leaflets were constructed according to general principles for the design of technical information reviewed by Grass et al. [4]. A two-sided format was developed in order to provide different levels of information requested by patients [1]. Our PIL giving information about inhaled bronchodilators is shown in figures 1 and 2.

The leaflets were evaluated within the setting of general practice. The studies were conducted in six small Hampshire towns. Leaflets were given patients in four of the towns by either a pharmacist or a general practitioner. Patients in the two control towns received no leaflets. The patients were selected on the basis that they were prescribed one of the study drugs during the survey period. Interviews were conducted with patients in their own homes 1–2 weeks after a consultation using a structured questionnaire. Knowledge was assessed with questions about the name of the drug, the dosage regimen and potential side effects of treatment, and patients were asked how satisfied they were with the information they received. Compliance was assessed by tablet counts and questioning. Each interview lasted for about 30 minutes. The data were analysed using the SPSS-X statistical package. Associations were tested using the chi-squared statistic.

Results

A total of 1218 patients were interviewed and the studies achieved an 80% response rate. Of the patients interviewed, 165 had been prescribed inhaled bronchodilators: 65 patients were given the PIL and 100 were in the control group and did not receive a leaflet.

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