Management of Mild and Moderate Bronchial Asthma in Adults

J H L COORAY*

Journal of the Ceylon College of Physicians, 1988-89, **21-22**, 19-22

Bronchial asthma is a common illness in Sri Lanka. It is probably underdiagnosed, since patients can present only with cough, without dyspnoea or wheeze. Hence they may be treated with cough mixtures or antibiotics instead of bronchodilators.

Diagnosis

One must suspect bronchial asthma in a patient presenting with a chronic cough, which is worse at night.

Physical examination could be normal. The chest X-ray, too usually reveals no abnormality. A blood or sputum eosinophilia are pointers to the diagnosis.

A family history of asthma, associated eczema or rhinits may be absent, particulary in intrinsic asthma.

The diagnosis may be confirmed by PEFR monitoring. This is also useful to assess the severity of the disease and the response to treatment.

PEFR monitoring (The best of 3 readings is recorded on waking, at 5 p. m. and at bedtime)

I. Low PEFR readings in the morning (morning dipping) is the most common pattern seen in asthmatics.[1]

II. An amplitude of variation of over 20-25% suggests asthma (normal 8%)[2].

III. An increase of 15-20%, 10-15 minutes after inhalation of a B agonist, also suggests asthma.

IV. A steroid trial

Administration of 30-40mg of prednisolone daily in a single morning dose for 2 weeks. Most asthma patients respond in 8 days, and all by the 11th day. An improvement of greater than 15-20% PEFR is suggestive of asthma.[3]

(1) Management

The management of the asthmatic patient can be conveniently considered under the following titles.

(a) Education of the patient, regarding the disease and its treatment.

(b) Avoidance of allergens or provoking factors.

(c) Drug treatment.

(a) Education of the patient regarding the disease and its treatment

This is important since asthma is a chronic disease. In view of the fact that self medication is not uncommon among asthmatic patients, they must be told which drugs could safely be used for long periods.

(2) Provoking factors/allergens in asthma are as follows.

1. Tobacco smoke
2. Drugs eg beta blockers, non steroidal anti inflammatory drugs.
3. Environmental factors

* *Consultant Physician, Chest Hospital, Welisara.*

i. Changes in temperature and humidity
ii. Non specific dusts.

4. House dust mite
5. Occupational factors (important in Sri Lanka) Vegetable dusts.
   i. Tea fluff in tea factory workers and tea blenders
   ii. Wood dust eg. jak dust in carpenters.
   iii. Cinnamon dust in cinnamon sorters
   iv. Flour/grain in farmers, millers, bakers

(b) Hair/feathers, excreta of animals, birds/poultry

(c) Isocyanates eg. in foam rubber workers

(d) Epoxy resins eg. paint or plastic workers

(e) Colophony fumes eg. electronic solderers.

6. Respiratory tract infections
7. Pets eg. cats, dogs, birds
8. Foods eg. shell fish, pineapple, tomatoes, nuts.
9. Food additives metabisulphites, wines, beer, fruit juices, monosodium glutamate, tartrazine — a colouring agent.
10. Acid reflux
11. Psychological factors

Drug used in asthma

(1) BETA AGONISTS
   1. Selective drugs eg. salbutamol terbutaline
   2. Non selective drugs eg. ephedrine, adrenaline (injection) isoprenaline (inhaler)

(2) THEOPHYLLINES
   1. Short acting eg. aminophylline
   2. Long acting, "Deriphyllin Retard" "Theovent La"

(3) Anti cholinergics eg. ipratropium bromide (inhaler)

(4) Oral steroids

PROPHYLACTIC DRUGS

i. Inhaled steroids
Beclamethasone inhaler "Becotide"

ii. Disodium cromoglycate "Intal"

iii. Ketotifen — not very useful, particularly in adult asthma.

Beta agonists

Many would consider beta agonists as drugs of first choice in mild to moderate bronchial asthma. Selective drugs eg. salbutamol terbutaline, cause less side effects such as cardiac irregularities and are therefore preferred to non selective drugs such as isoprenaline which is, hardly ever, if at all, used. However ephedrine and ephedrine containing compounds are widely used in this country and do not seem to cause many side effects.

Inhaled vs oral therapy

Beta agonists, administered in the inhaled form have the following advantages over tablets.

1. relief of symptoms more rapidly
2. Since the dose of the beta agonists necessary to relieve symptoms is very much smaller, if inhaled, side effects are less.

However inhalers are expensive and are therefore prescribed only to patients who can afford them.

Some patients harbour misconceptions about inhalers eg. that they are dangerous and addictive. Health

education is needed to counter these misconceptions.

Theophyllines

May be used in conjunction with the beta agonists, when the response to the latter is inadequate. Long acting theophyllines are particularly useful in the treatment of nocturnal asthma.

3. **Anticholinergic drugs** eg. ipratropium bromide are very expensive and are not available in this country.

4. **Indications for oral steroids.**

1. In acute severe asthma

2. When there is progressive clinical deterioration or when the patient needs increasing doses of bronchodilators.

3. To achieve maximal bronchodilatation before beclamethasone inhaler administered since the latter acts best when the airflow obstruction is minimal.

(In these situations, high doses of steroids are administered for short periods).

4. When there are disabling continuous symptoms in spite of other treatment regimes (In this instance the smallest effective dose of the oral steroid is used long term).

A British Thoracic Association Study on asthma deaths[4] concluded that ".... treatment in most fatal attacks had been inadequate; patients, their relatives and doctors had underestimated the severity of attacks, and in particular doctors had appeared reluctant to prescribe corticosteroids for severe asthmatic episodes". Hence it is better to administer oral steroids, in case of doubt.

Episodic asthma

An asthmatic patient who has long spontaneous remissions eg. for months or years, will not need regular drug therapy or prophylactic drugs. Such a patient can be given an oral or inhaled beta agonist, eg. salbutamol, when symptoms arise. A short course of oral steroids could be administered if necessary.

Chronic asthma

If the patient has continuous symptoms for months or years, with absent or infrequent remissions, then regular drug therapy with prophylactic drugs eg. beclmethasone inhaler should be considered in combination with drugs used to relieve symptoms, such as beta agonists.

The following are important features of prophylactic drugs.

1. They have to be taken at least twice a day, for years without interruption. (even if the patient is asymptomatic.)

2. They are expensive. Therefore the prescribing physician must satisfy himself/herself that the patient can afford to purchase these drugs for long periods. (There is an urgent need for these drugs and other inhalers to be included in the government hospital formulary so that at least some of the more deserving patients can obtain them free of charge)

3. There is a tendency for some patients to use drugs to obtain immediate relief of symptoms. They must be warned that this would be unsuccessful.

4. Since these drugs are generally available as inhalers the technique of

administration has to be taught to the patient.

Management of nocturnal asthma

1. One must improve day time control with beta agonists.

2. Prophylactic medication such as inhaled steroids must be considered,

3. Administration of a long acting theophylline preparation or long acting salbutamol or both at night.

4. Allergen avoidance i. e. keeping bedding/bed room dust-free as reasonably as possible.

Difficult control in asthma[5]

1. Wrong diagnosis

Left ventricular failure, tropical pulmonary eosinophilia, upper airway obstruction, carcinoid syndrome,

2. Poor drug compliance,

3. Influence of provoking factors.

4. Associated diseases eg. thyrotoxicosis

5. Types of variant asthma

(A) Unstable asthma
- — nocturnal asthma
- — brittle asthma syndrome
- — premenstrual syndrome

(B) Steroid dependant and resistant asthma

(C) Fixed asthma

Fixed asthma

In some patients the airway obstruction becomes less reversible with time and eventually becomes indistinguishable from the chronic obstructive pulmonary disease associated with chronic bronchitis.

This may result from structural changes in the airways due to chronic inflammation and emphasises the need for tight control of asthma. The decline in lung function seems to be greater in both active and passive smokers providing a strong argument for a ban of cigarette smoking in the households of patients with asthma.

Methotrexate in asthma

Certain drugs including methotrexate are now being tried out in asthmatic patients who need long term oral steroids for control of symptoms, but the side effects may outweigh any steroid sparing effect[5].

Conclusion

Asthma is very common in Sri Lanka. Attention to provoking factors, where they can be identified and avoided can lead to a remakable remission in a few cases. With adequate treatment, most if not all asthmatic patients can lead a near normal and active life. However the high cost of certain drugs is often a constraint for adequate treatment.

REFERENCES

1. Turner Warwick M: On observing patterns of air flow obstruction in chronic asthma. *Br. J. Dis. chest* 1977; 71; 73 - 86.

2. Hetzel MR Clark TJH: Comparision of normal and asthmatic circadian rhythms in peak expiratory flow rate : *Thorax* 1980; 35; 732 - 738.

3. Webb J, Clark TJH, Chelvers C: Time course response to prednisolone in chronic air flow limitation. *Thorax* 1981, 36; 18 - 21.

4. *British Medical Journal* 1984; 298: 1442

5. Peter J, Barnes, K. 'Fan Chung : *British Medical Journal* (1989) 299: PP 695 - 698.