

The use of nebulizer systems in asthma

THE main advances in the management of asthma are concerned with its early detection, thorough assessment and appropriate treatment with bronchodilators and, where necessary, prophylactic medication. Most patients can now benefit from inhaled drugs using pressurized aerosols, rotahalers or nebulizers. As our care of asthma improves, acute attacks should become less frequent and less severe. Unfortunately, some patients will continue to develop acute attacks despite good management and it is in these cases that nebulizer systems are useful.

Important factors in airflow obstruction in asthma are smooth muscle spasm (bronchospasm), mucosal oedema and mucus overproduction. In situations where bronchospasm is the major problem, there is no doubt that a nebulized bronchodilator is very effective.¹ In future, it seems likely that parenteral sympathomimetics and xanthines will be used less, in favour of inhaled bronchodilators via nebulizers.

It is important to appreciate that sympathomimetic drugs affect only one of the causes of airflow obstruction. Mucus overproduction and mucosal oedema have to be treated with steroids. The airways obstruction that remains despite the use of a nebulized bronchodilator can be assessed by measuring the peak expiratory flow rate. During an asthmatic attack, readings should be taken before and after treatment with a nebulized bronchodilator. If the peak expiratory flow rate fails to improve appreciably or if the reading after treatment suggests that considerable obstruction remains, steroids should be given and hospital admission considered. If the practice is prepared to supervise the patient closely, many asthma attacks may be managed at home by regular treatment with a bronchodilator and steroids.² Some patients with acute asthma will be too young to use a peak expiratory flow rate meter and in these cases it is very important to monitor activity, respiratory rate and pulse rate.

In acute, severe cases of asthma, the use of nebulizer systems may be dangerous if it delays the administration of steroids and hospital admission.^{3,4} Although most asthmatic attacks are mild, severe asthma is potentially fatal. When attempting to assess the severity of an asthmatic attack, objective evidence of airways obstruction is always valuable. Sequential measurements of the peak expiratory flow rate will reflect the progression of an attack. If the attack continues intercostal recession and exhaustion may occur. With the development of cyanosis⁵ death may be imminent and immediate hospital admission is essential. Oxygen should be given as soon as possible using a mask

to ensure a high concentration of the gas. A nebulized bronchodilator should be given together with intravenous hydrocortisone and oral prednisolone. Intravenous aminophylline should be avoided if the patient is on oral xanthines as serum levels can quickly enter the toxic range.⁶

A nebulizer system is useful in less acute situations such as the administration of prophylactic medication to children under three years of age who are not able to use other delivery systems. A sodium cromoglycate nebulizer solution is the standard prophylactic for patients at this age, but beclomethasone dipropionate suspension is now available and should be tried if sodium cromoglycate is ineffective. A further application of nebulizer systems is to provide regular high doses of a bronchodilator to those patients who have shown no improvement with a high dose of a bronchodilator given by conventional inhalers.⁷

The use of nebulizer systems in general practice remains controversial and there is little objective evidence for the benefits to be obtained from their use.^{2,8-10} Some authors feel that nebulizers may reduce the number of acute asthma cases which are admitted to hospital but there is no statistical proof for this.^{2,8} Nebulizers are a small part of the armamentarium against asthma and studies are needed to demonstrate their benefits and dangers. At present the use of a nebulizer in general practice should always be closely followed by the doctor and be accompanied by the use of a peak expiratory flow meter.

PETER BARRITT

General Practitioner, Shrewsbury

References

1. Fanta CH, Rossing TH, McFadden ER. Emergency room treatment of asthma. *Am J Med* 1982; 72: 416.
2. Barritt PW, Hodgson K. Use of the nebulizer in home asthmatic care. *Update* 1985; in press.
3. Gregg I. Misplaced confidence in nebulized bronchodilators in severe asthma attacks. *Br Med J* 1982; 284: 46-47.
4. O'Donnell TV. Home nebulizers for asthmatics. *NZ Med J* 1982; 95: 637.
5. Cochrane GM. Systemic steroids in asthma. In *Steroids in Asthma*. New Zealand: Adis Press, 1983, pp. 103-109.
6. Zwillich CS, Sutton FD. Theophylline-induced seizures in adults. *Ann Intern Med* 1975; 82: 784-787.
7. Wilson RSE. Nebulized bronchodilators in asthma. *Res Clin Forums* 1984; 6: 63-71.
8. Lenney W. Nebulized salbutamol in acute asthma in children. *Lancet* 1978; 2: 440-441.
9. Howarth NJ, Gadsby R. Nebulized salbutamol in general practice. *Lancet* 1980; 2: 1202.
10. Jenkinson D. Use of a nebulizer for acute asthma. *J R Coll Gen Pract* 1983; 33: 725.

Priority objectives for vocational training

ONE of the biggest problems in vocational training for general practice has been the need to design courses appropriate for doctors preparing to work in the widest of all medical roles. Almost every specialty can argue that some aspect of its discipline is relevant to the general practitioner and more and more specialties are arguing the case for the inclusion of specific topics in vocational training. The subsequent pressure on trainees, trainers, course organizers and advisers has increased and there have been a variety of responses ranging from anxiety to apathy.

The latest *Occasional paper* comes from the Oxford Region

© *Journal of the Royal College of General Practitioners*, 1985, 35, 171-172.

Course Organizers' and Regional Advisers' Group. The Oxford region has a particularly distinguished record in developing vocational training. It was one of the first regions to publish useful statistics;¹ it was certainly the first region to introduce a psychologist to the adviser/organizer team; and more than any other region it has formalized the interview process for the selection and reselection of trainers, particularly using video tapes of consultations with patients. This region's achievement has been to produce a succession of changes after wide consultation with trainers while simultaneously conducting research, for example about the clinical work trainees do.² *Occasional paper 30* comes, therefore, from an important stable and it tackles the difficult problem of what subjects are important and where