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 nebuhalers. 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 cyanosis[5] 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.

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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 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

emphasis should be placed in teaching general practice at the postgraduate level. It also makes the case for some form of overall view and refers to the experience of Tate and Pendleton[3] with trainers who were unable to agree on the importance of the Leeuwenhorst aims,[4] now over 10 years old. They repeat the well known case for working in terms of educational objectives and they recount the importance of current developments in general practice, notably the greater attention rightly being paid to the role and views of patients and the needs of the community. They have adopted the broad headings of patient care, communication, organization, professional values and personal and professional growth, and divided their objectives into these groups.

The emphasis on patient care is welcome and fits the emerging recognition within general practice of the central and overriding importance of this aspect of work.[5,6] The objectives given in the final section of the document are not likely to arouse great controversy and should be generally recognized as a useful and effective summary of the present state of the art. In this sense the document can be seen as the successor to the string of publications which appeared in the 1970s, in particular those from the colleges of Britain in 1972,[7] Canada in 1974[8] and Australia in 1976,[9] all of which, particularly the publication from Canada, concentrated on constructing lists of objectives.

The plea in the later part of the document for greater collaboration with consultants and the recommendation that 'some form of half-day release course should be provided during the hospital post for general practitioner trainees' is unanswerable and needs to be tackled not just in the Oxford region but nationally.

The impact and ultimate value of this document are likely to hinge, as the authors indicated, on the fact that 'a list of objectives is no use on its own, unless it is clear how it might be implemented and ... assessed'. Here there may be some substantial difficulties, given, for example, such objectives as the doctor's ability to demonstrate tolerance, respect and flexibility in his response to the ideas of others, including those of his patients, peers and teachers. What degree of tolerance is required, by what yardsticks can it be measured, and how can it be compared between colleagues? Similarly, while no one could disagree that the doctor should be able to demonstrate 'an understanding of the importance of the need to manage a practice effectively', it is not so easy to agree on how this should be done, and even dividing it into 'accessibility and appointment systems, information given to patients, records and registers, employment and attachment of staff, and use of time' leaves further questions. How accessible should the doctor be, and what exactly constitutes appropriate use of time?

All lists of objectives raise questions about assessment and the main contribution of this document is likely to be that it heightens awareness of the need for assessment and the need to review methods of assessment currently available in general practice, both nationally and regionally. It is to be hoped that this strong team from Oxford will follow up this work and report again in the future on how they are assessing their own agreed priority objectives.

Priority objectives for general practice vocational training, Occasional paper 30, is available from the Publications Sales Office, Royal College of General Practitioners, 8 Queen Street, Edinburgh EH2 1JE, price £3.50 including postage. Payment should be made with order.

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Sudden infant death syndrome

GENERAL practitioners, who are normally the doctors to have first contact with cases of sudden infant death syndrome, will have been dismayed by the recent sweeping statements and sensational reporting of information on this puzzling and distressing condition.

It is a fact that pathologists with considerable experience of performing autopsies on babies dying in the first year of life, and the Foundation for the Study of Infant Deaths both acknowledge the possibility of parental intervention. However, the most recent information would suggest that the number of cases which involve possible parental intervention, expressed as a percentage of the total number of infant deaths, is in single figures.

Surely this must lead us to deplore pronouncements from those in authority, or who are seen to hold influential positions, which cannot be fully substantiated by conclusive scientific evidence. There must be concern that the lack of knowledge of sudden infant death syndrome might encourage those who can find no other diagnosis to cite parental intervention.

However, criticism and condemnation are not in themselves a way forward. It must be hoped that, in view of our lack of knowledge, those entering general practice will have learned the necessary skills to support and comfort bereaved parents. The promotion of research and support of bereaved parents by the Foundation for the Study of Infant Deaths should be fully acknowledged and supported.

It is to be hoped that general practitioners will (subject to the constraints of confidentiality) provide information which might help research workers with this difficult problem. Research workers should make use of the system of general practice lists operating in the UK; this allows access to a vast database of information.

Those who have had the difficult and at times distressing task of supporting bereaved parents must have noticed the desire in these parents to know more and to support research so that other families are not similarly afflicted. That parents in this situation can think so positively should be regarded as encouragement to those seeking a solution to this problem. Statistics seldom affect people, but the uncritical statement, especially when sensationally reported, causes distress to those who need, not furtive accusation, but understanding and support.