Current challenges in asthma

Population surveys indicate that the increase in the prevalence of asthma may now be flattening off. This coincides with increasing use of inhaled corticosteroids, given to two-thirds of asthmatics treated by their GPs by the late 1990s, which may explain the decrease in serious asthma attacks and mortality in the UK in the past decade.[1] Nevertheless, many challenges remain in the diagnosis, prevention and treatment of asthma in primary care.

In theory, avoidance of triggers may prevent asthmatic symptoms and improve quality of life. However, persuading asthmatic patients to stop smoking, or to avoid favourite animals that trigger wheezing episodes, illustrates that the theory may not be so easy to translate into practice. Much evidence has emerged showing the benefit of self-management plans, and the paper by de Vries *et al*[2] seeks to answer the important question of the added value of mattress covers in patients already on management plans. They showed that the semi-permeable covers led to a significant reduction of the allergen levels in the mattress, but sadly this was not shown to translate into a significant reduction in the dose of inhaled steroids needed to maintain asthma control. Overall measures to avoid house dust mite have not been shown to make dramatic differences to the average patient with asthma[3] (although, of course, there may be some who defy the average and respond dramatically).

One of the current difficulties with the evidence base for asthma management is that much of the research has been carried out in adults. For this reason, licensing of medication is more restricted in children and the consequence is a substantial quantity of 'off-label' prescriptions, as shown by McCowan *et al*.[4] This paper is a cross-sectional survey so cannot answer questions of causation, and the authors wisely avoid coming to any conclusions about why they find more poorly controlled asthmatics who are given off-label drugs. The most common reason for the off-label prescriptions was found to be prescribing outside of the licensed dose, and there are particular concerns about high-dose inhaled corticosteroids and long-acting β-agonists.

The use of high-dose inhaled corticosteroids in children can lead to adrenal suppression; a reminder of this was circulated in the UK by the Medicines Control Agency in October 2002.[5] Very high doses of fluticasone (1000 mcg/day) were highlighted as potentially dangerous in case reports, in comparison to the maximum licensed dose of 400 mcg/day in children from the age of 4 to 16 years.

The addition of long-acting β_2-agonists (salmeterol or formoterol) has become a useful alternative to increasing the dose of inhaled steroids for adults with asthma who do not achieve good control on lower doses of inhaled steroids alone.[6,7] While many patients report that the addition of a long-acting β_2-agonist has transformed their asthma, the response does seem to vary between patients in clinical practice, and not all report a huge benefit. In time it may become clear why this is, but at present the only way to test the response in a given individual is to try it out, and only continue in those who show a marked improvement.

The slow onset of action of inhaled corticosteroids contrasts with the rapid impact of a long-acting β_2-agonist, and this provides an opportunity to tackle the major difficulty of long-term compliance. Whereas patients who leave off their inhaled steroids may notice no difference, missing the long-acting β_2-agonist can provoke an immediate deterioration in lung function or symptoms. For this reason it seems logical to combine long-acting β_2-agonist and inhaled steroids in a single inhaler (Seretide® [A&H] or Symbicort® [AstraZeneca]).

There have been long-standing worries about the over use of β_2-agonists and the risk of life-threatening asthma attacks, and the recent SMART study[8] from the US did show an excess of asthma-related deaths in those randomised to salmeterol compared with placebo. The trial was enormous, enrolling 26 355 subjects, of whom 19 128 (73%) completed the 28-week study period. There were 13 asthma- related deaths in the salmeterol arm and three in the placebo arm, a relative risk of 4.37 (95% confidence interval [CI] = 1.25 to 15.34). 'This represents an absolute increase of one extra death over 6 months for every 1250 patients treated with long-acting β_2-agonist, but the confidence interval is wide (95% CI = 700 to 10 000).'[9] The earlier Severent Nationwide Surveillance study[10] from the UK in 1993 also showed a threefold increase in asthma and respiratory-related deaths on salmeterol (12/16787) compared with salbutamol (2/8393) over a 16-week study period.

There has been much debate since the publication of SMART[8] about whether the main danger of life-threatening asthma events is related to racial factors (as there were a higher proportion of deaths in African–American patients), and how far inhaled corticosteroids protect against such events. Although SMART was not designed to answer the latter question, as there was no randomisation of patients to inhaled corticosteroids, it is nevertheless striking that nine of the 10 excess asthma-related deaths in the salmeterol arm were in the 53% of patients who were not taking inhaled corticosteroids at enrolment.

Following the SMART study, additional warnings were added to salmeterol and formoterol patient leaflets, reminding users that long-acting β_2-agonists are not a substitute for inhaled corticosteroids. The danger is that patients who are given both drugs in separate inhalers may discontinue their inhaled steroid and unwittingly stray outside recommended use. Perhaps it is no coincidence therefore that the prescribing of combined inhalers is increasing, and the days of long-acting β_2-agonist inhalers that are not combined with inhaled corticosteroids may be numbered.

The particular issue of the lack of data with respect to paediatric asthma and the

use of long-acting β_2-agonists was highlighted by Bisgaard[11] in the *Lancet*, who argues strongly that the treatment for children with asthma needs to be based on trial data in children (rather than extrapolation from results in adults), and suggests that the licensing authorities should demand more studies in children. He also points out that the *BNF for Children* stresses the importance of discontinuing long-acting β_2-agonists in children if there is no response.

Dangers could arise if patients with asthma find that their usual symptoms of deterioration are masked by inhaled β_2-agonists, and they consequently delay obtaining a rescue course of oral steroids for an exacerbation. Doubling inhaled corticosteroids has produced disappointing results in trials,[12] so it is important to ensure that patients on long-acting β_2-agonists understand that serious asthma attacks should not be ignored, and early use of a short course of oral steroids remains the most likely way to avoid deterioration leading to a hospital admission.[13]

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Healthcare providers need to improve communication with patients who have heart failure

A diagnosis of heart failure carries a poor prognosis. Approximately one-third of patients diagnosed with the condition will be dead after 12 months[1,2] and 5-year survival rates following a first hospital admission for heart failure have been estimated at 25%.[3] However, a number of recent qualitative studies have found that a substantial proportion of patients with a diagnosis of heart failure do not understand the nature and seriousness of their condition, in part due to a lack of information supplied by healthcare providers and use of the poorly understood term 'heart failure'.[4–6]

In a community-based study in Scotland, Murray *et al*[5] compared the experiences of 20 patients with inoperable lung cancer and 20 patients with advanced heart failure, along with those of their main informal and professional carers. In contrast with cancer patients, it was reported that patients with heart failure rarely recalled being given any written information and had a poor understanding of their condition and its symptoms. Prognosis was hardly ever discussed and there was little acknowledgment that end-stage cardiac failure is a terminal illness. In addition, patients and carers reported that they did not feel involved in decision making or encouraged to work in partnership with professionals.

It has been reported that patients with heart failure believed that doctors would not want to talk about the patient's likely death or give them too much information about their illness and treatment,[6] and that patients believed some healthcare providers were unwilling or unable to give them the information and guidance they required.[4] In addition, a study based in a Barcelona hospital suggested that doctors caring for patients with heart failure rarely discussed end-of-life issues.[7]

There is evidence that many patients with heart failure do want more information. In a UK-based qualitative study of 27 patients with heart failure in secondary care, Rogers *et al*[6] found that