Declining asthma severity


An overview of the factors affecting the declining severity of asthma.

Asthma is a common condition, reportedly affecting as many as one in five school-age children (Kaur et al 1998). For many, its effects are mild, although it can be serious and even life-threatening. Recent publications appear to provide conflicting information on asthma prevalence. On the one hand, we are told that the prevalence of asthma has doubled (Upton et al 2000), only to learn a few weeks later that it has been in decline since 1993 (Fleming et al 2000a). This short report aims to explain the reasons for this apparent contradiction.

Recent evidence for an increase in asthma in adults came from a Scottish study where a questionnaire used in the early 1970s was repeated in 1996 with the next generation in the same families (Upton et al 2000). The prevalence of atopic asthma more than doubled in the second survey, from 1.4 per cent to 3.2 per cent. This finding was in keeping with similar studies using repeated questionnaires (Magnus and Jaakola 1997).

The evidence for declining asthma severity was collated from data collected by the Weekly Returns Service (WRS) of the Royal College of General Practitioners. This is a sentinel network of general practices in England and Wales, which was founded in 1967 and records the reasons for consultation with GPs and practice nurses. Currently, 73 practices are involved, surveying just over 1 per cent of the population.

Figure 1 shows the rise and fall of asthma attacks reported by the WRS in five separate age groups. There is a consistent peak around 1993. Corroborating evidence for the recent decline in asthma comes from a general practice surveillance system used in Scotland (Simpson et al 2000). Considering new diagnoses of asthma, the authors also recorded a decline in new diagnoses during the second half of the 1990s.

Figure 1 helps reconcile studies that show a rise in asthma with data from general practice showing a fall. The paired questionnaire surveys between the 1970s and 1990s show a rise because they compare rates near the bottom of the peak with points near the top. But they do not tell us what has happened more recently; the figure indicates that the asthma peak in 1993 has since passed.

Anecdotal evidence also suggests that asthma severity is declining in that GPs feel they are now seeing fewer patients with asthma attacks. The decline in asthma attacks in general practice is welcome; death rates and hospital admissions have also stopped increasing. On the basis that one accepts the evidence for a decline, we can consider the contentious issue of why this has happened.

Better treatment

One of the main advances in treatment has been the increased use of corticosteroid inhalers, but these were introduced before the asthma peak in 1993. It is difficult to explain why asthma rates continued to rise after the introduction of these drugs if they were the sole contributing factor. More recent pharmacological advances such as leukotriene receptor antagonists (LTRAs) and long-acting β2-agonists have only been used in significant quantities since the late 1990s.
REFERENCES

Changing patterns in health care

More patients are now managed in primary care than in hospital. Hospital admission rates for asthma are approximately one tenth of those for surgery consultations and visits for asthma attacks in primary care, but both have decreased (Fleming et al 2000b). Of greater importance might be the influence of nurse-led asthma clinics, which have been shown to improve the pattern of asthma care (McCowan et al 1997). Patients are often given written treatment plans and taught to manage acute attacks themselves, sometimes without the need for GP consultation. Asthma clinics were established in the early 1990s, so there is a possible temporal link between these clinics and the decline in asthma attacks.

Environmental/immunological factors

The WRS also provides data that identify seasonal trends in asthma attacks (Fig. 2). Remarkably similar trends are found in hospital admission rates. Asthma attacks peak in the spring and summer in younger age groups, coinciding with peak periods of tree and grass pollens respectively. Winter asthma peaks, seen in all age groups, are related to respiratory infections. The seasonal pattern of asthma attacks evolves with age (Fleming et al 2000b). This is an interesting observation and suggests a more dynamic approach to asthma management.

Data from the WRS also demonstrate a reduction in rates of respiratory infections since 1993 (WRS 1999) – a possible factor in falling asthma rates. The natural variation in pollen counts and respiratory viruses might be important in determining the severity of asthma in the community. A bad hay fever season, coupled with a run of respiratory viruses, might sensitise and aggravate the airways of many patients. We do not have a good way of assessing the viral load in our communities. The impact of the influenza virus and respiratory syncytial virus (RSV) are reasonably well recognised, but there is little ongoing information about other respiratory viruses.

Others have suggested that dietary factors are important. In particular, a diet rich in fruit and fresh vegetables containing antioxidants is thought to be protective (Seaton et al 1994). The use of antibiotics or exposure to allergens in early life has been postulated as a cause of increased tendency to asthma (Hopkin 1999). Increasing hygiene standards with an associated reduction in exposure of infants to parasitic and gastrointestinal pathogens is thought to increase the possibility of immunological sensitisation (Strachan 1989). Pollution and increased levels of house dust mite have also been proposed as contributors to the asthma epidemic (Platts-Mills 1994, Wardlaw 1993), but it is debatable whether any of these factors improved in 1993. It is likely that a combination of factors is responsible for the changing epidemiology of asthma. Nurse-led clinics and improved treatment might explain the decline in part, but environmental factors are likely to be more important.

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