Why are hospital admissions of children with acute asthma increasing?

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ABSTRACT: The hospital admission rate for asthma has increased in many countries. Particularly prominent has been the increase for children, especially male children under five yrs. The increased admission rate refers to increased number of individuals and to increased frequency per individual. The moderate increase in asthma prevalence does not account for the large increase in admissions. Various other factors are discussed here, such as changes in admission criteria, medical management, and/or clinical expression of the disease.

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Asthma poses a major health problem. This is well illustrated by the high mortality rate in adults [1], although fortunately an uncommon event in children [2]; the rising hospital admission rates for acute asthma at all ages [3-5]; and the significant morbidity as measured by days lost from school or work [6].

Hospital admission rates for asthma in New Zealand have increased notably in all age groups since the mid 1960's [3]. In five yrs (1976-1981) national admission rates have almost doubled, and this increase has occurred uniformly throughout the country [7]. The increase is not restricted to New Zealand, but is an international phenomenon, although New Zealand and Australia show the most striking increases [8-9]. Particularly prominent has been the increase in admission rates for children, especially male children under five yrs [10-12].

Hospital admissions refer to events rather than individual patients. Therefore, these trends could possibly be explained by a tendency to more frequent admissions to hospital of those children who have established asthma and have an exacerbation, thus boosting the admission rates by numerous re-admissions. There is some evidence from studies in New Zealand and England that this is partially so, but the change is insufficient to account for the total increase in numbers [4, 11].

There have been many attempts, over several years, to establish prevalence rates for asthma. The surveys have used a wide variety of methodologies, which reflect the lack of a firm definition of the condition. The diagnosis of asthma has been variously based on questionnaire, examination, lung function tests and bronchial challenge tests. Unfortunately, the original hope that bronchial challenge tests would be the gold standard for the diagnosis of asthma has not been fulfilled [13].

Further confusion exists between "wheezing" and "asthma" [14]. Several studies have suggested that only a third of all children with histories of recurrent wheeze have been labelled as having asthma [15-17]. The prevalence of recurrent wheezing in western populations has been variously reported as between 2 and 39% and of asthma between 2 and 18% [18]. Swain [19, 20] has reported an increase in prevalence in Birmingham, England from 1.8% in 1957 to 6.3% in 1975, but this increase could have been caused by a change of definition. In Lower Hutt, New Zealand, an increase in the reported prevalence from 7.1% in 1969 [21] to 13.5% in 1982 was found in the same two intermediate schools using the same questionnaire [22]. Although this study suggests that prevalence has increased it is not definite, as "asthma" may now be better recognized by the family practitioner and parent than was the case in 1969. However, even if the prevalence has increased it does not readily explain the huge increase in admissions.

Admission patterns could be influenced by change in the criteria for admission to hospital as perceived by the general practitioner or parents, such that more children with mild asthma are now referred for admission. This has been studied, retrospectively, in both New Zealand and England. Two of the studies suggested that the threshold for admission has remained unchanged
The increase in hospital admissions for asthma in children is real and is not explained by diagnostic transfer, readmissions, or changes in admission criteria. The uniformity of the increase within New Zealand [7] and the smooth increase with time in all countries studied [8] suggests that whatever the factor, it is operating throughout the western world. Environmental factors such as pollution or airborne allergens, which may have produced this, seem unlikely culprits [33], but changes in diet cannot be excluded [34]. Medical management of asthma must be examined more closely. In particular, long-term trials are needed comparing asthmatics treated with regular sympathomimetics with those using sympathomimetics sparingly. The other major research need is to answer conclusively whether or not prevalence and severity of asthma is increasing.

References


