

Undiagnosed and untreated wheezing in a cohort of adolescents with a family history of allergic disease

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SUMMARY

Wheezing is a common symptom among adolescents. A cross-sectional survey was undertaken of a prospective cohort of teenagers with a close family history of allergy. The results demonstrate the prevalence of wheezing, the diagnosis of asthma, and the treatment of symptoms in this group. The findings suggest that undiagnosed and inadequately or untreated wheezing is as common among adolescents with a family history of allergic disease as in the general adolescent population, and can be associated with severe symptoms.

Keywords: *adolescence; wheezing; asthma; allergy and immunology.*

Introduction

WHEEZING in adolescents is common. Although often indicating asthma, it has other causes and it is frequently unreported and undertreated. This report relates the results of a survey of wheezing and treatment in a cohort of adolescents with a close family history of allergic disease, who were recruited antenatally.

Method

The Allergy Prevention Study is an ongoing cohort study in South Wales. Four hundred and ninety-seven babies who had a first-degree relative with allergic disease were enrolled between 1982 to 1984.¹ The children were closely followed up as babies. At the age of seven, 453 children were contacted, of whom 440 were examined.

At around the age of fifteen years, a postal questionnaire was sent to all of the 453 children, enquiring about wheezing, which was defined as a positive response to the question: 'Have you heard a wheeze coming from your chest during the last 12 months? ('Wheeze' means a whistling sound, whether high or low-pitched, and however faint.)'. The questionnaire also incorporated questions on treatment for chest symptoms. Non-responders were sent two postal reminders, and continuing non-responders were contacted by telephone. Data analysis was carried out using SPSS software (Statistical Package for the Social Sciences).

Results

Three hundred and sixty-three questionnaires were completed, which constituted responses from 73% of the original cohort of 497 children and 80% of responders at the age of seven. Two hundred and thirty-nine of them (48.1%) replied to the first questionnaire, 75 (15.1%) to the second, and 21 (4.2%) to the third. Twenty-seven teenagers were contacted by telephone and one was visited at home (5.6%).

One hundred and thirteen (31.0%) of the responders had experienced wheezing during the previous year (referred to below as 'responders with recent wheezing'), and 39 (15.1%) reported that they had never suffered from asthma.

Of the 113 responders with recent wheezing, 35 had received no treatment, 37 were on bronchodilators only, and 41 were on bronchodilators and inhaled steroids. Three were taking sodium cromoglycate, one was on salmeterol, and three had received courses of oral steroids. Most of the 41 individuals on inhaled steroids were taking them at fixed times; however, nine adolescents took them only when wheezy.

Seventy-four responders with recent wheezing said they had 'ever suffered' from asthma. All but three were on treat-

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Table 1. Severity of symptoms, previous diagnosis of asthma and treatment in the 113 responders with recent wheezing.

	Asthma	No asthma ever diagnosed	Total
All 113 responders	74	39	113
Sleep and speech unaffected by wheezing	15	13	28
Sleep disturbed less than once weekly, speech not affected	33	15	48
Responders with potentially severe wheezing (see text)	26	10	36
Missing data	0	1	1
Treatment with bronchodilators and/or inhaled steroids (all 113 responders)	71	9	80

HOW THIS FITS IN*What do we know?*

Wheezing is common in adolescents and is often undiagnosed and untreated.

*What does this paper add?*

Wheezing is just as likely to be unreported in those with a family history of allergy. GPs should consider asking all teenagers specifically about wheezing.

ment. Nine responders with recent wheezing who did not report asthma were also on treatment, of whom eight were using bronchodilators, four were also using inhaled steroids, and one had used a nebuliser.

A subgroup was identified of responders with potentially severe wheezing who, according to the British Thoracic Society guidelines, should be treated with inhaled steroids. This subgroup comprised those who reported, in the previous year, an episode of wheezing that limited speech to one or two words between breaths, or of waking up once a week or more owing to wheezing, or both. Thirty-six (32%) of the responders with recent wheezing fulfilled this definition. Of these, 10 stated that they had never suffered from asthma. Another 48 (42%) of the 113 responders with recent wheezing had had sleep disturbances occurring up to one night a week within the previous year. Eight (22%) of the responders with potentially severe wheezing were receiving no treatment, 10 (28%) were on bronchodilators only, and 18 (50%) were on bronchodilators and inhaled steroids.

Discussion

The final response rate is reasonable for adolescents. Separation of severity of symptoms by method of response suggested that postal and telephone responders (potential non-responders) appeared to have a similar symptom distribution.

Questionnaire diagnosis of asthma by enquiry about wheezing has quoted sensitivities of 0.85 and 0.65 and a specificity of 0.81 and 0.62, respectively.^{2,3}

Given the way in which this cohort was selected, it is surprising that the prevalence of wheezing (31%) was no higher than that of the population-based ISAAC study (30–36.7%).⁴ However, the teenagers in this study were older, the question was worded slightly differently, and comments on some replies demonstrated parental involvement. Parents underestimate the presence of wheezing in their adolescent children^{5,6} and this could be the main reason for the unexpectedly low 12-month prevalence of wheezing.

A comparison of severe symptoms shows that, while the

prevalence of speech-limiting wheezing was lower in our study (6.1%) than in ISAAC (8.8%), that of frequent night waking was higher (6.6% versus 3.7%). This correlates with parental involvement; parents are more likely to be aware of nocturnal symptoms than speech-limiting wheezing outside the home.

Over a quarter of responders with potentially severe wheezing stated that they had not had a diagnosis of asthma. This may represent true underdiagnosis, faulty recall, poor symptom perception, or willingness to tolerate symptoms rather than to consult. If the symptoms are a true reflection of wheezing severity, then treatment of this group may be inadequate. In fact, only half of the group were on bronchodilators and inhaled steroids. Although possibly not all the remainder require inhaled steroids, the reported symptoms suggest that more might have benefited from them. In addition, the survey uncovered some confusion about the correct use of inhaled steroids. Reported medication use may not, of course, truly reflect practice.

Conclusion

Undiagnosed and untreated wheezing can be as common among adolescents with a family history of allergy as in the general adolescent population. Symptoms can be severe. Given the high prevalence, general practitioners should consider asking teenagers specifically about wheezing.

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