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Parents and school children reported symptoms and treatment of allergic disease differently

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Abstract

Objective: To examine the difference between children and their parents in reporting symptoms and treatment of allergic diseases within a longitudinal birth cohort.

Study Design and Setting: Information on symptoms and treatment of asthma, rhinitis, and eczema was obtained by questionnaire from 2,744 children (mean age: 12 years) and their parents. Differences between the responses were computed, and agreement assessed both absolutely and with kappa coefficient.

Results: On 12 of the 15 questions, children's and parents' reports differed significantly. Asthma-related issues appeared significantly more prevalent in the children's reports, although kappa values were fair to very good. For symptoms of allergic rhinitis, the prevalence pattern varied, and kappa values were moderate to good. Parents reported a higher prevalence of eczema-related issues, but the children reported a significantly higher prevalence of eczema itself. Kappa values ranged from moderate to good.

Conclusion: Although reports of allergic symptoms and treatment by 12-year-old children and their parents were in moderate-to-good agreement, children reported more symptoms than their parents. Symptoms of allergic disease should be reported by children themselves, from the age of 11 years, whereas questions of prescribed pharmacological treatment could be answered either by the children or their parents.

Keywords: Agreement; Asthma; Children; Eczema; Parents; Rhinitis; Questionnaire

1. Introduction

Allergic diseases are common during childhood and are estimated to affect approximately every third child in most Western countries [1]. Recent studies have presented divergent trends in the prevalence of symptoms of allergic diseases, although asthma and eczema are suggested to have leveled off in regions where prevalence rates have previously been high [2−4]. Most epidemiological studies of prevalence of allergic diseases in children rely on questionnaires completed by the parents. For infants and toddlers, information on symptoms and treatment of allergic disease must be retrieved from the parents, but as the children grow older and more independent, parental reporting becomes less dependable.

Only a few studies have compared the agreement between parental and self-completed questionnaires about allergic diseases in children [5−7]. In general, these studies have shown significant differences between the children's and parents' reports, and agreement between the two sources is believed to be poor [6,7]. In contrast, a recent Swedish prospective study showed good agreement between parental and self-completed questionnaires about allergic diseases in teenagers [8]. However, it appears that the agreement between children's and parents' report differs between the various allergic diseases, with the best agreement for question about asthma [6,7].

Furthermore, it is not clear at what age the children themselves become the most reliable source for studies

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What is new?

Key findings

- In general, there was moderate-to-good agreement between reports of allergic symptoms and treatments between parents and children. Children reported higher prevalence of symptoms than their parents, and parents reported more treatment.

What this adds to what was known?

- Although the agreement between the reports of children and their parents was good, there could be significant differences in the prevalence of symptoms or treatment as reported by the children and their parents.

What is the implication and what should change now?

- Symptoms of allergic disease should be reported by children themselves, from the age of 11 years. Questions of prescribed pharmacological treatment could still be answered by either children or their parents.

of allergic symptoms. A previous study has suggested that collecting statements from both parents and children is useful up to the age of 11 years, after which children themselves are better at reporting symptoms, whereas parental reporting provides only limited complementary information [9]. Another study by Whiteman and Green [10] conclude that agreement between responses from children and parent depends largely upon the type of information sought, rather than characteristics of the respondents. Relying solely on the children's reports is in line with the methodology used in the International Study of Asthma and Allergies in Childhood (ISAAC) where 13- to 14-year-old children completed the questionnaires at school [11].

However, it has not been evaluated how a change from parental- to child-reported symptoms may affect the apparent prevalence of allergic disease (i.e., asthma, allergic rhinitis, and eczema) in a longitudinal birth cohort. The aim of this study was to compare the information on symptoms and treatment of allergic disease retrieved from school children and their parents within such a study.

2. Material and methods

2.1. Study design

The BAMSE project (Children, Allergy, Milieu, Stockholm, Epidemiological Survey) consisted of 4,089 children in a population-based cohort. The children were consecutively recruited to the project from the population of Stockholm between 1994 and 1996 at one of the first visits to the children's health center during their first months of life. The enrollment and inclusion criteria have been described in detail elsewhere [12]. Briefly, at a median age of 2 months, data on family history of allergic disease and various environmental exposures were obtained by parental questionnaires. When the children reached 1, 2, 4, and 8 years, the parents received a mailed questionnaire focusing on symptoms related to allergic diseases and key exposures such as diet, parental tobacco smoking, pets, dampness, and so on. At 8 years of age, 84% of the children still remained in the cohort.

The latest follow-up was performed in March−June 2008 when the children were 11−14 years old (mean age: 13 years). Parents and their children received one questionnaire each that could be completed online or in paper form. The questionnaire aimed at obtaining information on lifestyle factors and symptoms of allergic diseases. The questions on symptoms and treatments of asthma, rhinitis, and eczema were slightly modified from the ISAAC questionnaire. This was the first time the children themselves were asked about their health. In total, 82% ($n = 3,358$) of the parents completed the questionnaire. Of these responses, 76% were provided by the mothers, 14% by the fathers, and 10% by mother and father together or by another guardian. The total number of participants with questionnaires answered by a parent and the child was 2,744, thus ultimately comprising the study population.

The study was approved by the Ethical Committee of Karolinska Institutet, Stockholm, Sweden.

2.2. Health outcomes and measures

The questionnaires enquired about the occurrence of a range of symptoms and treatments, in the past 12 months, and were directed separately to the children and their parents (see Supplements 1 and 2 in Appendix at www.jclinepi.com). A few questions offered different response alternatives in the children's and the parents' questionnaires. All the answers that were not negations (no or never) were coded as affirmative (yes, maybe, rarely, now and then, frequently, or always).

Recurrent wheeze and asthma

- Wheezing or raspy breathing
- Symptoms of asthma
- Difficulties sleeping because of asthma
- Asthma medication
- Difficulties breathing when exercising
- Difficulties breathing without exercising
- Wheezing affecting daily activities

Allergic rhinitis

- Sneezing/runny/blocked nose