

Prevalence of asthma and atopic symptoms in children aged 5-11 years

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Abstract

Objective To assess prevalence of asthma and atopic symptoms in a group of school children aged 5-11 years and to look at prevalence of usage of asthma medications.

Setting Three schools in Gampaha District in August 1998.

Method A questionnaire translated into Sinhala was distributed to parents/guardians of 2195 children aged 5-11 years in Grades 1-5 of the schools and the filled questionnaires were collected through class teachers. Asthma, allergic rhinitis and eczema were defined using the clinical criteria of the International Study of Asthma and Allergic Conditions (ISAAC). Data was analysed using Epi Info version 6. Chi squared test and Chi squared test for trend were used for significance testing.

Results Return rate of questionnaire was 93%. Sixty six percent were completed by mother, 30% by father and rest by guardian. Prevalence of asthma was 23% and of exercise induced asthma 11%. Prevalence rate of allergic rhinitis was 10% and eczema 3%. Within the specific group of asthma, in response to leading question "Has your child had asthma" only 19% of parents gave a positive answer. Prevalence of asthma in males did not significantly differ from that in females ($p=0.5$). A decreasing trend of asthma was observed with increasing age in girls ($p<0.05$). Eighty four percent of asthmatic children were using salbutamol orally and 9% without asthma in study population were also using salbutamol.

Conclusions One in 5 children aged 5-11 years in study population had asthma but parental perception about asthma was poor. More than 80% of asthmatics had some medications for the disease.

Introduction

In many parts of the world asthma is the leading cause of chronic illness in childhood. It is also a common cause of school absenteeism¹. Prevalence of asthma is increasing all over the world^{2,3}. However, little is known about the exact prevalence of asthma and atopic conditions in Sri Lanka. This study was undertaken to assess the prevalence of asthma and atopic symptoms in a group of school children aged 5-11 years in the Gampaha District. The study also looked at prevalence of asthma medication usage in the same population.

Method

The study was carried out in 3 schools in the Gampaha District in August 1998. All were mixed schools situated in semiurban areas. Selection of schools was based on easy accessibility. A self-administered, purposely designed questionnaire was sent to parents or guardians of all children who were in Grades 1-5 (ages between 5 and 11 years) in these schools. The questionnaire was aimed at screening and identifying children with asthma and atopic conditions in the preceding 12 months. The following questions were asked:

For asthma "Has your child had wheezing or whistling in the chest in the last 12 months?" We also asked a leading question from parents / guardians "Has your child had asthma in the last 12 months?"

For exercise induced asthma "Whether your child developed paroxysms of dry cough / wheezing / became unusually breathless during play, in the last 12 months?"

In addition, we asked whether their children had paroxysms of nocturnal cough, difficulty in breathing, persistence of dry cough for more than a week following a common cold, to try and identify other symptoms of asthma.

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For allergic rhinitis “Has your child had a problem with sneezing with runny nose or blocked nose without having an associated common cold in the last 12 months?”

For eczema “Has your child had an itchy rash which was coming and going in lower limbs in the last 12 months?”

For asthma medication “Has your child used oral salbutamol / inhaler / required nebulization in the last 12 months?”

We requested the class teachers to collect the filled questionnaires within a week after distribution.

The questionnaire was translated into Sinhala using appropriate words. Pilot testing of the translation was performed using in-ward patients in the University Paediatric Unit of Colombo North Teaching Hospital, Ragama and the questionnaire was validated.

Data was analysed using Epi Info version 6. Chi squared test and Chi squared test for trend were used for significance testing.

The Ethics Committee of the Faculty of Medicine, University of Kelaniya, granted ethical clearance for the study.

Results

Two thousand and forty three (93%) out of 2195 questionnaires were returned. Of them 66% were completed by the mother, 30% by the father and the rest by a guardian. The prevalence of asthma and atopic conditions is given in Table 1.

Table 1
Prevalence of asthma and atopy

<i>Condition</i>	<i>Prevalence (%)</i>
Asthma	441 (23)
Exercise induced asthma	225 (11)
Allergic rhinitis	204 (10)
Eczema	51 (3)

Total subjects = 2043

Within the specific group of asthma, in response to the leading question “Has your child had asthma” only 84 (19%) gave a positive answer. Prevalence of asthma in males was 23%, which did not significantly differ from that in females which was 22% ($p>0.5$). Of the group who had exercise induced asthma, 56 (25%) children did not have wheezing other than during play. There was a positive family history of atopy (presence of either allergic rhinitis or eczema) in 219 (66%) of asthmatic children in the study.

A significant decrease in trend of asthma prevalence was observed with increasing age in girls as shown in Table 2 ($p<0.05$).

Table 2
Prevalence of asthma in relation to the age

<i>Gender</i>	<i>Age in years</i>				<i>Total</i>	<i>Chi square for trend</i>	<i>P value</i>
	<i>5 - 6 N (%)</i>	<i>6.1 - 8 N (%)</i>	<i>8.1 - 10 N (%)</i>	<i>10.1 - 11 N (%)</i>			
Male	21 (20)	93 (24)	80 (24)	20 (24)	918	0.26	0.6
Female	27 (28)	94 (24)	77 (20)	22 (18)	995	4.8	0.03

The prevalence of other symptoms of asthma is given in Table 3.

Table 3
Prevalence of other symptoms of asthma in the study population

<i>Symptom</i>	<i>Asthma</i>		<i>P value</i>
	<i>Yes N (%)</i>	<i>No N (%)</i>	
Paroxysms of cough	253/404 (63)	130/1476 (09)	< 0.001
Difficulty in breathing	275/441 (62)	62/1510 (04)	< 0.001
Persistence of cough after a cold	288/428 (67)	197/1495 (13)	< 0.001

The distribution of usage of asthma medication is shown in Figure 1.

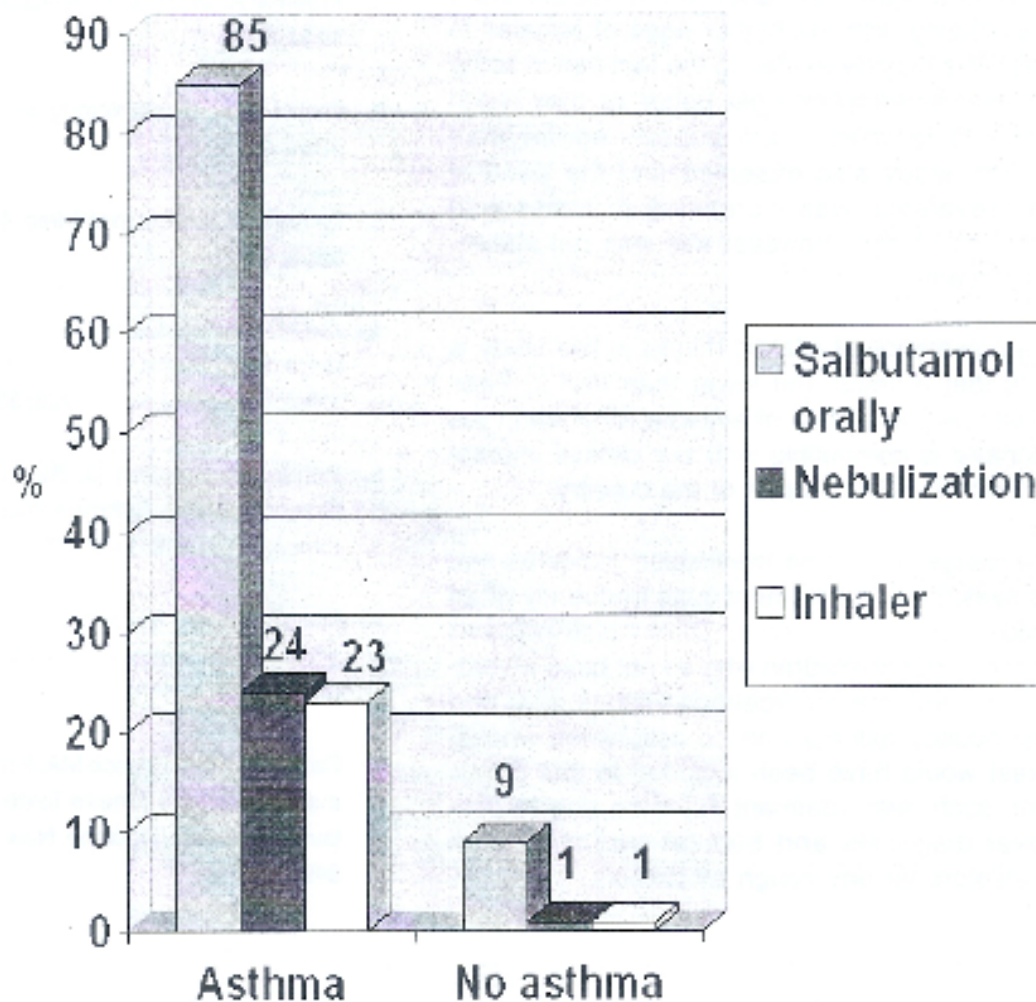


Figure 1. Usage of asthma medication (total subject = 2043)

Discussion

We assessed the prevalence rate of asthma and atopic conditions using the same criteria used by the International Study of Asthma and Allergies of Childhood (ISAAC)⁴. Parental reporting of wheezing in this study is much higher than in some of the other Asian countries such as India, Pakistan and China, but lower than that in the UK^{4,5}. Parental understanding of the symptoms could also have had some effect on the prevalence rates, as the educational level was not homogeneous among parents.

The relatively low level of acceptance of their children having asthma by parents indicates that their perception regarding the illness is sub-optimal.

Furthermore, it is also possible that parents do not want to accept that their children have asthma due to the social and cultural stigmas attached to the illness in this country.

There is a significant reduction in the prevalent rate of wheezing with the higher ages of females in the study. This may be related to the fact that in some children asthma symptoms get better as they reach puberty⁶ and females attain puberty earlier than males⁷. The study also observed that the trend of asthma prevalence was increasing in males with advancement of age. However, this was not statistically significant.

The prevalence of allergic rhinitis in this study is similar to that in India, but lower than that in

Pakistan⁴. The low prevalence of eczema reported in the questionnaire is compatible with our clinical impression of children from this part of the country.

The usage of asthma medication indicates that parents seek medical treatment quite frequently when their children develop wheezing. Figure 1 also indicates that a fair number of children who do not have wheezing were on asthma medications. Those who had exercise-induced asthma with no associated wheezing at rest would have been included in this group. However, such over-treatment could also be due to possible over-diagnosis and blanket treatment with bronchodilators for any cough by doctors.

Conclusions

The study shows that one fifth of school children between 5-11 years in the study population had experienced wheezing in the preceding one year. The parental perception about the asthma is poor although a large number of asthmatic children had received treatment.

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