

Evaluation of Asthmatic Patients Referred to Jahrom Hospital and Clinic

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ABSTRACT

Asthma is the most common chronic respiratory disease of children in the world. Serial studies in the world have showed an increased prevalence of bronchial asthma. In this study, the children younger than 12 years old referred to Jahrom hospital and clinic due to asthma were selected. We issued 100 questionnaires, according to International Study of Asthma and Allergies in Childhood (ISAAC) criteria and were completed by the physicians. The ratio of male to female was 1 to 9. The patients who were under the age of 4, 3 and 1 year were 82%, 60% and 15% respectively. Passive smoking was present in 56% of the patients, and 22% had pets at home like cat, dog or bird. Home dampness was present in 33%. Ninety percent of patients had used breast feeding during the first year of life. Seventy percent of patients had family history of asthma. Food allergy was present and could trigger asthma in 15%. The result of ISSAC questionnaire showed that during the last year wheezing was present in 10%, 6% had 1-3 attacks and 4% had 4-12 attacks. Sleep disturbance by wheezing had occurred in 5% but cough in 16%. Thirteen percent of patients had wheezing after exercise. In Jahrom town the climate is warm and dry. In this town asthma in children is more common among the children who are younger than 4 years old. The risk factor like smoking at home, pets and home dampness should be eliminated from their environment.

Keywords: Asthma, Child, Questionnaires

INTRODUCTION

Asthma is the most common chronic illness of children.¹ Serial studies from different parts of the world have reported an increased prevalence of bronchial asthma. There are some differences between the populations in different socioeconomic state. Although many researches have been conducted studies on the prevalence of asthma in children, but because a single definition of asthma or uniform methods of obtaining epidemiologic information is not used, the published data are variable. Prevalence

estimates for asthma may be derived from patient-parents questionnaires, physician assessment and objective-assessment of lung function and symptoms.^{1,2} Asthma frequently begins in childhood, although estimates of the incidence of asthma in various age groups vary widely and may be greatly underestimated too.²

There have been few epidemiologic studies conducted in Iran. Due to the importance of this disease and its complications, this study was carried out in Jahrom town located in the south of Fars province which has approximately 60000 population with dry-warm climate and relative low economic state.

MATERIALS AND METHODS

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Evaluation of Asthmatic Patients in Jahrom

In this research, the children younger than 12 years old, referred to Jahrom hospital and clinic due to asthma were selected. We considered these parameters: age, sex, family history of asthma, underlying disease, smoking at home and nutritional status (Breast feeding during the first year of life).

Presence of allergen in environment like drugs, pets at home, foods and viral infections were evaluated. These data were recorded in the questionnaires. We used International Study of Asthma and Allergy in Childhood questionnaire (ISAAC) protocol.

Table 1. Risk factors affecting asthma.

	No.	Percent
Smoking at home	56	56%
Animal at home	22	22%
Home dampness	33	33%
Breast feeding during infancy	90	90%
Family history of asthma	70	70%
Food allergy	15	15%
Repeated otitis media	20	20%
Number of people living at home 5 or more	58	58%

RESULTS

Totally, 100 questionnaires were completed. Sixty five patients were male and thirty five were female. Fifteen patients (15%) were under one year, 60% and 80% of the patients were under 3 and 4 years of age respectively.

Table 2. Prevalence of wheezing, asthma and other symptoms (ISAAC questions).

	No.	Percent
Wheeze ever	17	17%
Wheezing in last year	10	10%
Attack of wheezing in last year		
1-3	6	6%
4-12	4	4%
>12	0	0%
Sleep disturbed by wheezing in last year	5	5%
Wheezing after exercise in last year	13	13%
Waking with cough in last year	16	16%

Different environmental variables and results of ISSAC questions are shown in tables 1 and 2 respectively. History of previous hospital admission was present in 65 (65%). The first attack of asthma occurred in 48% before the age of 1 year.

DISCUSSION

Asthma is a serious problem in the world, with an increasing prevalence and morbidity.³ Reviewing of articles showed that asthma is more common in developed countries.⁴ Despite an increased prevalence of childhood asthma but because of improvement in treatment the rate of admission has decreased in Sweden.⁵

In our study the ratio of male to female was about 1 to 9. Before puberty asthma occurs 1.5 to 3 times as frequently in boys as in girls.^{6,7} Masjedi et al showed prevalence of asthma and related symptoms, among 6127 students in 72 schools and found 15% in 6-7 years old students and 17% in 13-14 years old students, 8.6% and 10.6% had recent attack, respectively.⁸ In a study in town of Bushehr in 13-14 year old school children, the prevalence of various symptoms of asthma was 19.8%.⁹ In The United States, the 0-4 years-old age- group had the greatest incidence of asthma compared with 5-9 and 10-14 years age ranges.^{6,7} Prevalence of asthma among elementary school children is 2.7% in city of Kerman.¹⁰

These gender shifts may be related to hormonal or biochemical alteration that affect immunologic or biologic pathways relevant to asthma pathogenesis.¹¹ Most children develop asthma before the age of 8 and over half before 3 as shown in our study.¹²

Passive smoking history was present in 56% of our patients. Active and passive exposure to tobacco smoke, in addition to acting as aggravator of asthma, can also be associated with irreversible loss of pulmonary function.¹³ Passive smoking is a major public health problem in Jahrom and it needs an intensive education program.

At home and other indoor environment, presence of animal may be associated with risk for asthma. In our study animals, like birds, lived at home of 22% of patients. Sick building like damp houses is a risk factor for asthma because they aggravate growth of mold. It is most marked in children with a family history of asthma.¹⁴ The advantages of breast feeding to the infant include acquisition of maternal anti-

bodies and immunocompetent cells such as macrophages and leukocytes and protection against early occurrence of lower respiratory tract infections. However, breast-feeding may also be a route of exposure to a variety of antigens from the mothers in the form of, cows' milk, egg, wheat and maternal IgE and sensitized lymphocytes⁽¹⁵⁾. Breast feeding during infancy was present in 90% of our patients but did not protect against asthma.

Bronchial hyperresponsiveness is an integral part of asthma and seems to have a heritable component. However the presence of aggregation among related individuals represent either shared genes or a common household environment.¹⁶ In our study family history of asthma was positive for 70% of patients and this was the most important risk factor for continued wheeze.⁴

Many dietary constituents have been investigated in the pathogenesis of asthma and evidence for a protective effect for vitamin C, ω -3 and ω -6 polyunsaturated fatty acids that are found in fish oil, have been detected.¹⁷ Increased dietary sodium and perhaps decreased magnesium are related to increased bronchial responsiveness to histamine challenge⁽¹⁸⁾. Although 15% of our patients had food allergy, but avoidance of infant's food allergen for more than 6 months appears to reduce the development of atopic dermatitis but not allergic respiratory disorders.

We found frequent otitis media in 20% of patients. Otitis media and sinusitis were important risk factors in the prevalence of asthma.¹ Viral upper respiratory tract infection was a trigger for asthma in 70% of our patients, they induce release of inflammatory mediators from mast cells and basophils in the lung.

When symptom prevalence was evaluated, higher values were obtained for wheezing ever, dry cough at night in the past 12 months and wheezing during or after exercise. Golshan et al in a questionnaire – based study among 1309 children in the town of Zarinshahr with age range from 6 to 13 years showed the prevalence rate of asthma diagnosed previously, asthma ever in life, current asthma, nocturnal symptoms and exercise-induced cough as 1.2%, 14.7%, 5.9%, 11.3%, and 19.4% respectively.¹⁹ These symptoms are accepted as the most important signs in the diagnosis of asthma.²⁰⁻²¹

In Jahrom town the climate is warm with low humidity. We conclude that asthma is more common in children younger than 4 years and environmental

risk factors like home dampness, smoking at home and animals at home should be eliminated.

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Evaluation of Asthmatic Patients in Jahrom

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