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Prevalence of Asthma among Schoolchildren in Gorgan, Iran by Questionnaire Surveys in 2006

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The aim of study to determine the prevalence of asthma in Gorgan. This cross-sectional study was carried out in randomly chosen public and non-profitable primary, guidance and high schools. Five hundred eighty copies of a standard questionnaire, which was randomly distributed among the students, were filled out by parents on behalf of their children. Six cases (1%) with triad asthma symptoms. Sixty five cases (11.2%) with cough 26 cases (4.5%) with tightness and 27 cases (4.7%) with wheezing, without they have caught cold. In all cases, 11.7% have at least one asthma symptoms. There was no significant relationship between asthma and age, sex and ethnic. As the results reveal the rate of asthma in Gorgan is high (11.7%) and it is important that people get educated to fight against asthma.

Key words: Asthma, chest tightness, students, Gorgan

INTRODUCTION

Asthma is one of the most common problems of public health this problem is a chronic inflammatory lung disease leading to extreme sensitivity (allergic reaction) in airways and finally shortness of breath (Burki *et al.*, 2006).

During recent 15-30 years, its prevalence has been increased in most countries (Verlato *et al.*, 2003). Although the cause of this increase has not been clearly revealed, it seems the bio-environmental factors such as air pollution, carbon dioxide, nitrous oxide, smog and psychological tension are the main cause of this ascending increase (Thomsen *et al.*, 2005).

Since the epidemiologic studies dealing with the prevalence of asthma are beneficial in recognizing the environmental stimuli; we did this study to determine the prevalence of asthma in this region.

MATERIALS AND METHODS

This descriptive-analytic study was performed by a reliable questionnaire of International Study of Asthma and Allergy (ISAAC) on 580 Iranian students (7-18 years). The subjects were selected by cluster random sampling. Along with the questionnaire the subjects were given a paper including information about the causes of research and the way of filling it out.

After gathering the questionnaires, the data was analyzed by Chi square, Kruskal-Wallis test and Mann Whitney ($p < 0.05$).

RESULTS

In this research participated 302 boys (52.1%) and 278 girls (47.9%). The average age of subjects were 12.88 ± 3.2 (boys 12.8 ± 3.1 and girls 12.9 ± 3.3). Six of them (1%) have the triad of asthma (coughing, dyspnea and wheezing). The coughing was the most common sign in those 65 (11.2%) students without having cold or influenza suffered from it (11.6% boys and 10.8% girls). Twenty six (4.5%) of them (4.3% boys and 4.7% girls) have dyspnea, 27 (4.7%) of them (5.0% boys and 4.3% girls) have wheezing. The difference between genders was not significant ($p < 0.05$). At least, 68 of the subjects (11.7%) suffered from one of aforementioned signs (39 boys (12.9%) and 29 girls (10.4%)). Prevalence of triad asthma symptoms considering the gender was 66.7 and 33.3% in boys and girls, respectively (Relative Risk = 1.86).

DISCUSSION

In present study, 1% of the subjects suffered from the three signs of asthma. Thomsen and colleagues reported

an increase of 4.3% by comparing the results of questionnaire related to asthma after 20 years (Thomsen *et al.*, 2005). In another study performed by Heinrich *et al.* (2002) on German 5-14 year old subjects was reported that the prevalence of asthma was being increased (Heinrich *et al.*, 2002).

Janahi *et al.* (2005) in a study by questionnaire (ISAAC) reported prevalence of children asthma in Qatar was 19.8%.

In other study, the range of asthma prevalence was increased from 17.7 to 29.8% in duration of 7 years. Furthermore, the number of children suffered from all three asthma symptoms (cough, dyspnea, wheezing) was changed from 9.6 to 9.9% (Rizwan *et al.*, 2004). Falade *et al.* (2004) reported 7.2% of the frequency of wheezing among Nigeria 6-7 year old students. In a study in Los Angeles that performed on under 17 years old subjects prevalence of asthma was 15.8% in black 7.3% in white, 6% in Asian and 3.9% in Latin people (Simon *et al.*, 2003). In present study, there was not significant difference between age and the triad of asthma whiles the asthma prevalence in another study in cities of Hamilton and Saskatoon in Canada in 6-7 years old children was 17.2 and 11.2% and in 13-14 years old children was 19.2 and 12.2%, respectively (Habbic *et al.*, 1999). The asthma prevalence in Turkey by a questionnaire in 2004 was 12.6% in 6-18 years, 14.7% in 6-10 years and 6% in 15-18 years old subjects (Bayram *et al.*, 2004). In another questionnaire study on 7-18 years old Tehran's students, the results asthma prevalence were 35.4% (girls 37.1% and boys 33.5%), 22.4% people were with more than ten days of cough sign and 6.4% with wheezing or dyspnea signs (MirSaeid Ghazi *et al.*, 2004).

Furthermore, in junior high school students of Isfahan by using a questionnaire and spirometry method the prevalence of asthma was reported 19.6% (Golshan *et al.*, 1999), while in other study, the prevalence of asthma in students was reported 14.9% (3.78% in boys and 4.69% in girls) (Boskabady and Karimian, 2000).

The researcher's criteria in define of the symptoms asthma can be considered one of the most important cause of varieties in asthma prevalence in different studies. In present study, 11.7% suffered from at least one of asthma symptoms while of this just one percent had all three related. In a study on 13-14 years old students in Booshehr asthma prevalence by questionnaire was 19.8% but by spirometry was 6.7% (Hatami *et al.*, 2002). The difference between the prevalence in Gorgan and another countries for example Asians and Europeans other than the way of study is due life style and also public health level infections disorder and family

condition. Tuberculosis, measles and helminth caused infections prevent the individual from suffering from asthma (Martinez and Holt, 1999).

There was not significant difference between the asthma prevalence in girls and boys, while in a study was performed in Mashhad was observed significant difference between two sexes (Boskabadi and Simaei, 1999).

We could not find significant difference between asthma and ethnic but Dahl showed that the prevalence of respiratory allergy is variable in different countries (in Spain 11.7%, Italy 33.6%, Austria 15.9%, Denmark 20.6%, Germany 23.5%, Netherlands 24.2%, Norwegian 28.8%, Sweden 28.8% and in England 26.2% (Dahl *et al.*, 2004). In addition to nationality factors such as social, economic and cultural factor are effective.

As the results reveal the rate of Asthma in Gorgan is high (11.7%) and it is important that people get educated to fight against Asthma.

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