Original Article

Paediatric Asthma

How Common is the Paediatric Asthma in Sialkot?

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ABSTRACT

Objective; This study was conducted to see the parental feedback regarding the prevalence of asthma symptoms in their children.

Study Design: A cross sectional study.

Place and Duration of Study: This study was conducted in a local school from December 2012 to March 2013.

Materials and Methods; This is a questionnaire based descriptive cross-sectional study. We selected a local school in which there are around 500 students.

Results: We had 238 questionnaires back out of 500, showing response rate of 47.6%. We found that 38 students had asthma, almost 16%, and there was male predominance. Night cough was the most common complaint in these students. Parental asthma was noted in 18% of the asthmatics.

Conclusion; This questionnaire based study revealed asthma to be more common in this part of Pakistan. More studies are required to see the validity of the observation. Asthma being more common and an important health concern, requires prompt health education of the public and health professionals as well as further research work.

Key Words: Asthma, wheeze, prevalence, incidence

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INTRODUCTION

Asthma is a major cause of childhood disability[1,2,3,4] as it has an acute and chronic nature of the disease. The suggested etiology of airway inflammation in asthmatic children has been described as variable, depending on the age[5]. Certain viral infections like rhinovirus and respiratory syncytial virus, are known to cause wheezing episodes and may lead to allergen sensitization [6]and subsequent asthma especially in younger age group. Sensitization and exposure to allergens is the major cause of allergic airway inflammation in older children. Recent evidence has been found in favor of synergistic effect between viral infections and aeroallergens exposure, leading to subsequent sensitization in genetically predisposed children[7,8]. In asthma, airway inflammation is characterized by infiltration of inflammatory cells, including mast cells, eosinophils and neutrophils. This cell infiltration subsequently leads to bronchial hyper responsiveness (BHR). Chronic inflammatory processes lead to persistent changes of the airways and airway remodeling. [9, 10]

Most of the children have mild or moderate disease, that can be managed by avoidance of triggering factors and with the help of medications, such as inhaled short-acting β_2-receptor agonists (SABA), inhaled corticosteroids (ICS), long-acting β_2-receptor agonists (LABA) and leukotriene receptor antagonists (LTRA) [11,12]. The aim of treatment is to achieve good asthma control by having minimum day and night symptoms ensuring a quality normal life. Asthma control is defined as "to which extent the manifestations of asthma have been reduced or removed by treatment" [13]. About 5% of all asthmatic children have chronic symptoms and recurrent exacerbations even with maximum treatment with conventional medications [14]. Such patients are termed as severe asthmatics. As there are no specific biomarkers of this disease, severe asthma is currently being defined on the basis of the intensity of treatment required to improve asthma control, and the level of control achieved [15,16]. In order to improve the asthma management, practice guidelines published by the National Heart, Lung, and Blood Institute (NHLBI) recommend that all patients should receive asthma education[17]. Establishing an ongoing partnership between physician and family is an essential component of the NHLBI guidelines[18]. Without appropriate self-management and asthma education, physician's recommendations are less likely to prevent asthma morbidity[19, 20.] In Pakistan there has been little work on the epidemiology of asthma, and we have done this study to help in this regard.

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MATERIALS AND METHODS

This is a questionnaire based descriptive cross-sectional study. We selected a local school in which there are

around 500 students. We modified the International Study of Asthma and Allergies in Childhood (ISAAC) protocol. The teachers were informed about the objectives of the survey as well as the parents. This study was completed in three months. Questionnaires were answered by the parents. Students were labeled as asthmatics that had one or more of the following features:

Diagnosed asthma by some physician, repeated attacks of shortness of breath, had ever been on nebulistaions/ inhaler, being wheezy/noisy breathings, chestiness, night time coughing, breaths difficulties, increased symptoms during winters and exercise induced dyspnea and coughing..

RESULTS

We received 238 questionnaires out of 500, showing response rate of 47.6%. Among these 57.6% were males and 42.4% were females. We labeled 38(16%) students as asthmatics. Mean age was 9.8 years. In these asthmatics 25 were males and 13 females. There were 5 students where parents were already aware of the diagnosis, made by some physician. Night time coughing was the most common symptom 57%, followed by winter associated exacerbations.

10 asthmatics had history of allergic rhinitis and 9 had history of skin allergies. We found that 18% of asthmatics had parental history of asthma.

Details of Asthmatic (38) students

Age	Minimum Maximum Mean	4 years 15 years 9.8 years
Gender	Males Females	25 13
Already diagnosed cases	5	13%
Repeated attacks of dyspnea	13	34%
Nebulistaions / inhalers use	8	21%
Wheezing attacks	8	21%
Chestiness	15	39%
Night cough	22	57%
Increased symptoms during winters	18	47%
Exercise induced dyspnea	14	36%
Skin allergy	9	23%
Allergic rhinitis	10	26%
Food allergy	3	7%
Parental asthma	6	15%
Parental allergic rhinitis	7	18%
Parental skin allergy	6	15%

DISCUSSION

Asthma affects >6 million children, of whom over half suffer from an asthma episode annually[21]. Preterm birth is associated with chronic lung disease in infancy and asthma like symptoms in later childhood[22]. The prevalence and morbidity of asthma, allergic rhinitis and atopic dermatitis are increasing worldwide[23]. The prevalence of wheeze in the past 12 months (current wheeze) ranged from 0.8% in Tibet (China) to 32.6% in Wellington (New Zealand) in the 13–14 year olds [24].

Asthma remains the most common chronic disease of childhood in the world[25, 26,] and is one of the leading causes of morbidity in children[27]. In inner-city schools in the United States of America, a survey using a brief questionnaire derived from the ISAAC wheezing questionnaire showed 60% under diagnosis of asthma. After validation of the diagnosis by a physician, it was concluded that school screening of asthma by a questionnaire is a valid tool even in deprived populations and regardless of the language [28, 29].

This study provides questionnaire based information on asthma. There have been local as well as international studies on such basis. Our study found frequency of asthma as 16% which may be a relative indicator of the prevalence. Similar results were seen in a study in Karachi[30]. However, this is higher than the other local studies[31,32]. The one in such age group found asthma (nocturnal) in 6% of the students[31] while the other found the frequency as 9.2% in adults aged 18-24 years[32]. There is wide variation in prevalence of asthma throughout the world ranging from 2.4% in Jodhpur (India) to 37.6% in Costa Rica[24]. There seems to be a rise in the number of asthma patients which may be multifactorial, like exposure to environmental tobacco smoke, industrial wastes and deficiency of vitamin D[27].

We also found in our study that nocturnal symptoms are the most commonly reported symptoms as was found in some other studies as well. As this was reported by the parents, it might have been the most disturbing feeling for them. The most common symptoms after night symptoms were increased symptoms during winters and chestiness respectively.

Our study found, increased number of male patients than female as in the other local study but parents were aware of the asthma in 13% of cases in our study while they were aware in 6% of cases in that study[31] .

A rising number of asthma patients can be the rising number of the acute severe asthma as well so more careful and large group studies are required to improve the awareness and education of community and health care professionals.

We also found a strong association of asthmatic individuals with allergic rhinitis, skin allergy and parental allergies. As the sample size was not that big in our study it might not be the real picture of the problem, so large scale studies will be more helpful. The study might have overestimated or underestimated the facts, as the questions were answered by the parents who might not have sufficient awareness of asthma.

CONCLUSION

Questionnaire based studies can be quite helpful to see the burden of the diseases like asthma in our country as

well. We found asthma to be a common problem in our study group. As the asthma is becoming more common such studies should be encouraged and should be of large scale. Similarly, asthma education should be spread more efficiently to help the community to understand and get proper treatment for this rising health problem.

Conflict of Interest: This study has no conflict of interest to declare by any author.

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