

Epidemiological Study on Bronchial Asthma at Shaheed Suhrawardy Medical College Hospital, Dhaka

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Abstract

Background: In Bangladesh more than 100 million people are suffering from cough and shortness of breath. Still people are getting unplanned treatment and taking unscientific, indigenous and sometimes harmful products to get relief. **Objective:** The present study was conducted to estimate the prevalence of different types of bronchial asthma in Shaheed Suhrawardy Medical College Hospital. **Methodology:** One hundred patients from respiratory medicine out patient department were included in this study using a well designed questionnaire, clinical examination by physician which was carried out from January, 2012 to June, 2012. The key questions were related to the type of asthma, family history, presence of atopic dermatitis and diabetes, information on smoking and alcoholic habits, domestic cooking fuel used, dwelling area, age, religion, socio-economic status and age of onset of disease. **Result:** Out of 100 subjects surveyed, 42 were females and 58 were males. The type of asthma is distributed as cough-variant-asthma (8%), intermittent asthma (52%), persistent asthma (16%), seasonal asthma (22%) and occupational asthma (2%). Regarding family history, 26% showed genetic predisposition irrespective of sex. Among asthmatics, 6% were having atopic dermatitis. Forty percent were smokers, 5% were alcoholics and 28% were with diabetics. Advancing age, usual residence in urban area and lower socio-economic status were associated with significantly higher odds of having asthma. **Conclusion:** It showed that cough-variant-asthma, diabetes and smoking habit increase the incidence of asthma attacks. [J Shaheed Suhrawardy Med Coll, 2013;5(2):77-80]

Keywords: Bronchial asthma, epidemiological study, respiratory distress, cough

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Introduction

Asthma is a global health problem affecting about 300 million people¹. It is estimated that there may be an additional 100 million people with asthma by 2025². Asthma accounts for about¹ in every 250 deaths worldwide³, although modern management, which obviously includes patient education, can prevent 80% of such death⁴. The economic cost of asthma is considerable both in terms of direct medical costs such as hospital admission, and cost of pharmaceuticals and indirect medical costs such as loss of work-time and premature death⁵.

Bronchial Asthma is a chronic inflammatory disorder of the airways associated with airway hyperresponsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing particularly at night or in the early morning³. These episodes are usually associated with widespread and variable airflow obstruction which is often reversible either spontaneously or with treatment¹. There has been an increase in the healthcare burden due to asthma globally. The prevalence and mortality from asthma have shown an upward trend during an era when quality medications are easily available for asthma². While this increase in the prevalence of

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asthma is rather global in nature, a difference does exist between the epidemiology, clinical spectrum and the management practices in Bangladesh and those in west³. The risks for developing asthma depend on a complex interaction of hereditary and environmental factors. Risk factors are genetic predisposition family history of atopy or asthma perinatal factors low birth weight, prematurity exposure to allergens; infections respiratory infections, especially those caused by respiratory syncytial virus environmental air pollution; tobacco smoke; diet and obesity⁴. Some of the differences are attributable to differences in the environmental exposures and health care infrastructure in Bangladesh while others could be truly genetic or ethnic in origin. Exposure to indoor pollutants represents a potentially modifiable cause of allergic sensitization and asthma. So, it becomes to establish which environmental factors might influence the development of asthma in predisposed individuals. Primary prevention includes creation of a productive environmental situation, leading healthy life-style, elimination of environmental factors or pollution⁶. There are only a few studies from Bangladesh on epidemiology of asthma. According to first national asthma prevalence study (NAPS) in Bangladesh about 7 million people (5.2%) suffering from current asthma, more than 90% of whom do not take modern treatment⁷. In a study done by Aggarwal et al⁸ the prevalence of asthma was found to vary from 4.3%-6.9% in the Indian subcontinent population. Asthma continues to place a heavy burden on patients and their families as well as the health-care system. This is the time to establish well-designed clinical trials to allow rapid evaluation of new and existing therapeutic approaches for asthma.

Methodology

The present study was a cross sectional descriptive study and was carried out in one hundred asthma patients in the Department of Respiratory Medicine at Shaheed Suhrawardy Medical College Hospital, Dhaka for a period of 6 months from January 20012 to June 2012. The patients who visit this hospital are mostly from low socio-economic status. Consent was obtained from the participating subjects after the purpose of the study was explained to them. The questionnaire was designed after at collecting information of asthma cases regarding demographical and environmental exposure factors. Patient data were obtained by interviewing the patient. The data of the patient included religion, age, gender, type of cooking fuel, dwelling area, occupation and income, education, dietary habit, family history of atopic dermatitis, smoking and alcoholic habit & diabetes. The data were analyzed by using SPSS Version 16.0.

Results

A total of 100 asthma patients were evaluated by using a questionnaire. The demographic profiles of the study group were recorded (table 1).

Table 1: Demographic profile of the subjects

Demographic profile	Frequency	Percentage
Religion		
• Muslims	91	91.0
• Hindus	8	8.0
• Christians	1	1.0
Total	100	100.0
Age(yrs)		
• 21---30	10	10.0
• 31---40	14	14.0
• 41---50	32	32.0
• 51---60	26	26.0
• 61---70	18	18.0
Total	100	100.0
Sex		
• Male	58	58.0
• Female	42	42.0
Total	100	100.0
Type of fuel		
• Gas	65	65.0
• Bio-fuel	05	5.0
• solid fuel	30	30.0
Total	100.0	100.0
Area of Residence		
• Urban	46	46.0
• Urban slum	26	26.0
• Rural	28	28.0
Total	100	100.0
Occupation		
• Labor	32	32.0
• Student	12	12.0
• Service	17	17.0
• Housewife	25	25.0
• Business	14	14.0
Total	100	100.0
Education		
• Literates	66	66.0
• Illiterates	34	34.0
Total	100	100.0

Majority of patients (91%) were Muslims whereas Christians and Hindus were 1% and 8% respectively. More number of subjects (58%) were found to be between the age group of 31-60 years. Males (58%) out-numbered females (42%). Majority of the study group (65%) utilized LPG cooking gas. Urban people (72%) were found to be more affected than rural people (28%). The number of literates (66%) was more than illiterates (34%). Majority of people belonged to low income category (72%). Family history of bronchial asthma was observed in 26% of patients while 74% did not have any family history. Only 6% patient have family history of atopic dermatitis A positive association of bronchial asthma was found with family history.

Table 2: Family History of Asthma and Atopic Dermatitis

Family history	Frequency	Percentage
Asthma		
• Yes	26	26.0
• No	74	74.0
Total	100	100.0
Atopic dermatitis		
• Yes	06	6.0
• No	94	94.0
Total	100	100.0

Table 3: Distribution of Type of Asthma and Physical Findings

Variables	Frequency	Percentage
Types of asthma		
• Intermittent	52	52.0
• Persistent	16	16.0
• Cough variant	8	8.0
• Seasonal	22	22.0
• Occupational	2	2.0
Presence of atopic dermatitis		
• Yes	12	12.0
• No	88	88.0
Physical conditions		
• Wheezing	92	92.0
• Coughing	100	100.0
• Shortness of breath	58	58.0
• Nasal problem	76	76.0

Majority (52%) of the subjects had intermittent asthma. Among the other asthmatics, 16% were had persistent asthma and 22% had seasonal 8% had cough variant asthma whereas very few had occupational asthma (2%). Twelve¹² percent patients had atopic dermatitis. Regarding physical condition of asthmatics, all the four symptoms occurred in almost all the asthmatics with different frequencies (table 3).

Table 4: Smokers, Alcoholics and Diabetics in Asthma Patients

Age group (Yrs)	Smokers	Alcoholics	Diabetes
21--30	05	01	0
31--40	11	02	02
41--50	13	02	07
51--60	08	0	12
61-70	03	0	07
Total	40(40%)	5(5%)	28(28%)

Frequency of smokers and alcoholics in asthma patients were 40% and 5% respectively. Female-smokers and alcoholics were not found. The asthmatics suffering from diabetes was 28%.

Discussion

Asthma has been recognized as a disease which results in increased morbidity and mortality¹. The magnitude of the problem of asthma has not been defined with certainty,

despite several epidemiological studies conducted throughout the world³⁻⁷. Indeed, studies on the prevalence of bronchial asthma lack consistency, possibly because of ill defined diagnostic criteria, non-standardized study protocols, different methodologies, environmental exposures and the health care infrastructure⁸⁻¹⁰. A positive association was seen between asthma and increasing age in rural and urban areas. The present study shows more number of people within the age group 31-50 in the rural and urban areas. This finding is similar to the result obtained by Kaur et al¹² and Rao et al¹³. A gender difference was noticed in this study with males being affected more than the females¹². The male predominance may be related to a greater degree of bronchial lability in males. This finding correlates with the finding of Jain et al¹⁴ and Rao et al¹³. However, according to Kaur et al¹² and Mansi et al¹⁴ female predominance was found which was attributed to the fact that use of cow-dung cakes as fuel for cooking lead to airway inflammation and asthma¹²⁻¹⁵. The 3/4th of the total subjects in the present study resided in urban areas. In fact, urban subjects are more exposed to various environmental allergens and pollutants. This result is similar to the study of Kaur et al¹². A positive association was seen between asthma and lower socio-economic status people unlike the studies of Jain et al¹⁴ and Prasad et al¹⁶. This study is closely associated with the studies of Rao et al¹³ and Kaur et al¹². The findings of the present study are concurrent with the well documented strong association of family history with the prevalence of asthma as seen in the studies of Prasad et al¹⁶, Kaur et al¹² and Jain et al¹⁴.

The study of Jain et al¹⁴ shows strong association between family history of atopic disorder and the prevalence of asthma whereas the present study shows only 6% of atopic disorder among asthmatics¹⁴. This may be attributed to the geographical variation or sample size taken. Smoking emerged as a significant risk factor for asthma. Most of the studies show correlation with this factor. Our study shows only 40% of Asthmatic people were smokers. According to Jindal and Gupta³, smoking as a risk factor of asthma has remained debatable. In this study 28% of asthmatics had diabetes which does not show correlation with other studies. According to Dhar et al¹⁷, Vanufford¹⁸ and Abrahamson¹⁹ it was shown that attacks of asthma could be prevented by intake of glucose. According to Gluck and Rogala²⁰ a confirmatory finding was reported and stated that asthma and diabetes rarely coexisted. Higher percentage of diabetics (24%) was seen in the study of Mansi et al¹⁵. The present study shows that the higher percentage of diabetics (28%) could be due to higher age group.

Conclusion

The data indicates that urban people, labour, literates and illiterates, people with low income are more affected because of their financial status. The increased number of asthmatics is mainly due to the environmental pollution. The study shows that it is essential to expand health care services and screening program for the diagnosis and treatment of asthma.

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