

# The Most Frequently Associated Signs and Symptoms amongst Patients Reporting to Hospital with Asthma

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## ABSTRACT

**Introduction:** Asthma is a chronic illness which is characterized by inflammation and hyper-responsiveness of airways. It is one of the most common chronic diseases of childhood in developed nations. There are approximately 235 million people in the world who suffer from asthma and more than 100 million people are bound to be affected by 2025. In 50% of school children wheezing is the presenting sign of asthma. Wheezing is high pitched whistling sound produced by the turbulence of airflow. The aim of present study is to study the most common presenting signs and symptoms of patients reporting to the hospitals with asthma.

**Material and methods:** The present prospective study enrolled 50 patients who reported to the Department of Chest diseases and Tuberculosis of Government Medical College, Patiala. Patients of acute, severe asthma were included in this study. A detailed history and clinical examination of the patients were done. Subcutaneous injection of 1 mg of Terbutaline was given and PEFr was recorded before and 20 minutes after injection. The following were taken as criteria for asthma: History, Examination and a 20% increase in PEFr. Analysis of the data was done using SPSS software. Chi square test was applied as a test of significance with P values of less than 0.05 taken as significant.

**Result:** A total of 50 subjects were enrolled aged between 10 to 62 years with the mean age of male being 46.47+-17.90 years and females being 38.07 +- 11.15 years. In this study, the chief complaint of breathlessness was observed in 50 (100%) of patients, wheezing in 48 (96%), cough in 36 (72%) and tightness of chest in 33 (66.0%) of patients URC was reported by 11 (22%) patients while 3 (6.0%) patients reported other symptoms. In this study, we have found that asthmatics were exposed to certain predisposing factors during their childhood. These include kuchha house brooming and dust in 40 (80%), humidity in the house and bathrooms in 36 (72%), congested localities in 36 (72%), exposure to kitchen smoke in 36 (72%), over-crowding in home in 32 (64%) patients, presence of pets/animals/pests in 30 (60%) patients, and 12 (24%) to sofa sets and carpets.

**Conclusion:** In our study, breathlessness and wheezing were the most common presenting symptoms. There was a significant association between precipitation of asthma and Humidity, Kitchen smoke, pets and congested and overcrowded area.

**Keywords:** Asthma, Cough, Humidity, Wheezing

associated with asthma. Symptoms associated with asthma begin to appear before the age of 5 and only small number of population i.e. 25% present with symptoms after 40 years of age.

There are a lot of variations in the prevalence of respiratory diseases like asthma, rhinitis, etc within and between different countries.<sup>8-10</sup> Environmental factors, economic and psychosocial factors are responsible for such variation in prevalence of the disease.<sup>11-14</sup> Asthma is more prevalent in boys but the ratio reverses as they reach puberty. After puberty, women are predominantly affected.<sup>15</sup>

Presence of family history of asthma is not considered sufficient for the development of the disease. In 50% of school children wheezing is the presenting sign of asthma.<sup>16</sup> Wheezing is high pitched whistling sound produced by the turbulence of airflow. Another common symptom of asthma is cough and mucus production. The aim of present study is to study the most common presenting signs and symptoms of patients reporting to the hospitals with asthma.

## MATERIAL AND METHODS

The present prospective study enrolled 50 patients who reported to the Department of Chest diseases and Tuberculosis of Government Medical College, Patiala. Patients of acute, severe asthma were included in this study. Patients were admitted to the hospital as per the norms of British Thoracic Society, 1993. All the patients were informed about the study and ethical committee clearance was obtained from the Institute. A detailed history and clinical examination of the patients were done. Subcutaneous injection of 1 mg of Terbutaline was given and PEFr was recorded before and 20 minutes after injection. The following were taken as criteria for asthma: History, Examination and a 20% increase in PEFr.

Patients were asked about the presenting signs and symptoms and a record of them was taken. A note of their predisposing and precipitating factor was also made. ECG was recorded and taken into account.

## STATISTICAL ANALYSIS

All the data was arranged in tabulated form. Analysis of the data was done using SPSS software. Chi square test was applied as

## INTRODUCTION

Asthma is a chronic condition in which the lower respiratory tract becomes hyper responsive. It is characterized by the presence of cough, wheezing and tightness in chest.<sup>1</sup> It is a major health concern in industrialized<sup>2,3</sup> and the developed nations of the country.<sup>4-6</sup> There are approximately 235 million people in the world who suffer from asthma and more than 100 million people are bound to be affected by 2025.<sup>7</sup> In spite of increased awareness and knowledge about the condition and its management, there has been an increase in the mortality rate

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a test of significance with P values of less than 0.05 taken as significant.

## RESULT

A total of 50 subjects were enrolled aged between 10 to 62 years with the mean age of male being 46.47+-17.90 years and females being 38.07 +- 11.15 years.

Table 1 shows the list of chief complaints of the patients. In this study, the chief complaint of breathlessness was observed in 50 (100%) of patients, wheezing in 48 (96%), cough in 36 (72%) and tightness of chest in 33 (66.0%) of patients URC was reported by 11 (22%) patients while 3 (6.0%) patients reported other symptoms. Breathlessness 50 (100%) patients and wheezing 48 (96%) were the most predominant symptoms followed by cough and tightness of chest which were present in 36 (72%) and 33 (66%) cases respectively. URC was present in only 11 (22%) of cases.

Table 2 shows the type of treatment taken by the patient previously. In this study, before admission, for the treatment of acute exacerbation of asthmatic attack, 37 (74%) patients used oral, 11 (22.0%) used injectables and 4 (8.0%) inhalers regularly while 6 (12%) patients used oral and 5 (10%) use injectables irregularly. 5 (10%) of the patient took rescue medicine in the form of oral and 12 (24%) as injectables whenever they got symptoms. Discrepancy in total is due to overlapping of treatment.

Table 3 shows the various predisposing factors that triggered an asthmatic attack. In this study, we have found that asthmatics were exposed to certain predisposing factors during their childhood. These include kuchha house brooming and dust in

40 (80%), humidity in the house and bathrooms in 36 (72%), congested localities in 36 (72%), exposure to kitchen smoke in 36 (72%), over-crowding in home in 32 (64%) patients, presence of pets/animals/pests in 30 (60%) patients, and 12 (24%) to sofa sets and carpets. There was a highly significant relation between congested locality, overcrowding, kitchen smoke, humidity and initiation of asthmatic attack.

Table 4 shows the ECG changes amongst the patients of asthma. In this study, p-pulmonale was observed in 9 (18%), ST-T changes in 4 (8%), RBBBB in 2 (4%) and L.V.H. in 2 (4%) patients.

Table 5 elaborates the preasthmatic symptoms in the patients. Predominant pre-asthmatic symptoms found in patients were various allergic disorders in 36 (72%) patients, URC 33 (66%) patients and post nasal drip (rhinosinusitis) in 30 (60%) patients. Nocturnal cough was found in 21 (42%) patients insomnia/irritability digestive disturbances in 5 (10%) patients. 6 (12%) patients had asthmatic attack without any predominant symptoms.

## DISCUSSION

Asthma is a chronic illness which is characterized by inflammation and hyper-responsiveness of airways. It is one of the most common chronic diseases of childhood in developed nations.<sup>17</sup> Various studies have shown increase in prevalence, morbidity and mortality associated with the disease during the last decade.<sup>18,19</sup>

According to a study done in Latin America, there are 4.1% to 26.9% of children aged between 6-7 years who suffer from asthma. Asthma is a multifactorial disease with genetic, socioeconomic condition, environmental and gestational factors leading to the disease.<sup>20,21</sup> In a study conducted by Moema et al<sup>22</sup> amongst 494 children, they concluded that smoking during pregnancy acts as a significant risk factor for asthma. According to our study, smoking acts as a predisposing factor for asthmatic attack in 46% of patients. But the major predisposing factor was kuchha floor brooming which lead to attack in 80% of the patients. According to the study by Moema et al<sup>22</sup>, there was no association between overcrowding and asthma. In our study,

Symptoms in groups	No. of patients	Percentage
Breathlessness	50	100
Cough	36	72
Tightness of chest	33	66
Wheezing	48	96
URC	11	22
Other complaints	3	6

**Table-1:** Chief complaint by the patients

Type of treatment	Total patients	regular		Irregular		Rescue	
		No.	%age	No.	%age	No.	%age
Oral	50	37	74	6	12	5	10
Injectable	50	11	22	5	10	12	24
Inhaler	50	4	8	-	-	-	--
No treatment	4						

**Table-2:** Type of treatment taken by the patients

Predisposing factors	Yes		no		total	
	No.	%age	No.	%age	No.	%age
Smoking parental	23	46	27	54	50	100
Congested locality	36	72	14	28	50	100
Overcrowding in home	32	64	18	36	50	100
Kitchen smoke	36	72	14	28	50	100
Pets/pests	30	60	20	40	50	100
Humidity	36	72	14	28	50	100
Sofa sets/ carpets	12	24	38	72	50	100
Kachha floor brooming	40	80	10	20	50	100

**Table-3:** Predisposing factors of the patients

ECG change	No	%age
P-Pulmonale	9	18
ST-T Change	4	8
RBBB	2	4
L.V.H	2	4

**Table-4:** ECG changes

Name	No.	%age
URC	33	66
Post nasal drip (rhinosinusitis)	30	60
Allergies	36	72
Nocturnal cough	21	42
Insomnia/irritability	16	32
Fever	10	20
Digestive symptoms	5	10
Without symptoms	6	12

**Table-5:** Preasthmatic symptoms in patients

overcrowding had highly significant association in precipitating an asthmatic attack.

The most common presenting symptoms of asthma are wheezing, cough, Chest tightness and shortness of breath/dyspnea.<sup>23</sup> According to our study there were 96% of the subjects who presented with wheezing as a symptom. All of the patients had breathlessness. Tightness of Chest was presented by 66% of the subjects. In a survey conducted by ISAAC (The international study of Asthma and Allergies in Childhood Steering Committee), in India, wheezing is shown by 17.8% of children in Kottayam, 13% of children residing in New Delhi.<sup>24</sup> According to a study by Moema et al, there were 42.1% of children who had wheezing and in 26.1% children; there was presence of Nocturnal cough. In 9.3% of children, their sleep was disturbed by wheezing. Therefore, it is very essential to take the complete and detailed history of asthma patient. History regarding intensity, duration, frequency and environmental exposure should be taken into account. Allergy acts as a triggering factor for asthma in 60-90% of children and 50% of adults.<sup>25</sup>

The limitations of our study were the smaller sample size and children were not given special consideration as they are the most commonly affected population.

## CONCLUSION

With the aid of proper and detailed history, this chronic condition can be diagnosed at an early stage. In our study, breathlessness and wheezing were the most common presenting symptoms. There was a significant association between precipitation of asthma and Humidity, Kitchen smoke, pets and congested and overcrowded area.

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