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A Prospective Study to Determine the Different Predisposing Factors And Treatment Modalities Opted By Asthma Patients: An Institutional Based Study

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ABSTRACT

Background: Asthma is characterized by hyper responsiveness of the lower respiratory tract. There is presence of characteristic signs and symptoms like tightness of chest, cough and wheezing. The present study was aimed to investigate the various predisposing factors and most commonly opted treatment options by asthma patients.

Materials and Methods: The present prospective hospital based study involved 90 patients reporting to the Department of General Medicine, KPC Medical College and Hospital, Jadavpur, Kolkata, West Bengal (India). The study was conducted from April 2016 to March 2017. A complete history along with detailed clinical examination of all the patients was performed. All the patients were given subcutaneous injection of 1 mg of terbutaline and after that PEFR was recorded. PEFR was recorded twice, once before and once 20 minutes after injection. A 20% increase in PEFR along with history and examination were taken as the criteria for the diagnosis of asthma. All the data was arranged in a tabulated form and analysed using SPSS software.

Results: A total of 90 subjects were enrolled aged between 15 to 60 years with the mean age of male being 47.47+-14.91 years and females being 36.17 +- 10.15 years. In this study, before admission, for the treatment of acute exacerbation of asthmatic attack, 66 patients used oral, 20 used injectables and 7 patients used inhalers. There were 4 patients who did not opt for any treatment. There were 74.2% subjects who used oral and 55% patients who used injectables regularly while 13(19.6%) patients used oral and 5(25%) use injectables irregularly. There was a highly significant relation between congested locality, overcrowding, kitchen smoke, humidity and initiation of asthmatic attack.

Conclusion: Breathlessness is the most commonly seen symptom that mostly all the patients present with. Humidity, overcrowding and kitchen smoke are few of the risk factors that can trigger an attack of asthma.

Keywords: Asthma, Humidity, Smoke, Wheezing.

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INTRODUCTION

Asthma is characterized by hyper responsiveness of the lower respiratory tract. There is presence of characteristic signs and symptoms like tightness of chest, cough and wheezing.[1] It is one of the major health problem both in industrialized[2-3] and developed nations of the world.[4-6] According to some estimates, there are 235 million people in the world who are suffering from asthma and more than 100 million people are likely to be affected by the year 2025.[7] Even because of increased knowledge and awareness about the symptoms and its management strategies, there is an increase in the mortality rate that is associated with asthma. In majority of the cases, the patient becomes symptomatic before the age of 5 years and there are only 25% cases that become symptomatic after 40 years of age.[8-10] The prevalence of various respiratory diseases like asthma, COPD and rhinitis varies amongst different countries and also within areas of same country.[11-14] During early years of age, asthma is more commonly seen in boys but this ratio reverses as they reach puberty. After puberty, women are more frequently affected.[15] Family history is not prudent in the development of asthma. A common presenting symptom, seen amongst 50% of the cases of asthma is wheezing.[16] It is produced due to the turbulence of airflow resulting in a high pitched whistling sound. Another commonly

associated symptom of asthma is cough and mucus production. The present study was aimed to investigate the various predisposing factors and most commonly opted treatment options by asthma patients.

MATERIALS AND METHODS

The present prospective hospital based study involved 90 patients reporting to the Department of General Medicine, KPC Medical College and Hospital, Jadavpur, Kolkata, West Bengal (India). The study was conducted from April 2016 to March 2017.

In this study all the patients reporting to the hospital with acute severe asthma were included. All the subjects were informed about the study and a written consent was obtained from all in their vernacular language.

Norms given by British Thoracic Society, 1993 were used as the criteria for the admission of the patients. The study was approved by the Institute's ethical committee. A complete history along with detailed clinical examination of all the patients was performed.

All the patients were given subcutaneous injection of 1 mg of terbutaline and after that PEFR was recorded. PEFR was recorded twice, once before and once 20 minutes after injection. A 20% increase in PEFR along with history and examination were taken as the criteria for the diagnosis of asthma.

Patients were also inquired about the presenting signs and symptoms which were recorded in a predesigned proforma. The proforma also had questions regarding the predisposing and precipitating factors of asthma. All the data was arranged in a tabulated form and analysed using SPSS software. Chi square test was used as a test of significance. Probability values of less than 0.05 were considered significant.

Table 1: Chief complaint by the patients

Symptoms in groups	No. of patients	Percentage
Breathlessness	90	100
Cough	63	70
Tightness of chest	60	66.7
Wheezing	85	94.4
URC	20	22.2
Other complaints	5	5.6

Table 2: Type of treatment taken by the patients

Type of treatment	Total patients	Regular		Irregular		Rescue	
		No.	%age	No.	%age	No.	%age
Oral	66	49	74.2	13	19.6	6	9.1
Injectable	20	11	55	5	25	4	20
Inhaler	7	7	100	-	-	-	--
No treatment	4						

Table 3: Predisposing factors of the patients

| Predisposing factors	Yes		No		P value
	No.	Percentage	No.	Percentage	
Smoking parentral	41	45.6	49	54.4	>0.05
Congested locality	65	72.2	25	27.8	<0.05
Overcrowding in home	58	64.4	32	35.6	<0.05
Kitchen smoke	65	72.2	25	27.8	<0.05
Pets/pests	54	60	36	40	>0.05
Humidity	32	35.6	58	64.4	<0.05
Sofa sets/ carpets	21	23.3	69	76.7	>0.05
Kachha floor brooming	72	80	18	20	<0.05

RESULTS

A total of 90 subjects were enrolled aged between 15 to 60 years with the mean age of male being 47.47+-14.91 years and females being 36.17 +- 10.15 years.

Table 1 shows the list of symptoms of the patients that they presented with. In this study, the chief complaint of breathlessness was seen in 90 (100%) of patients, wheezing was seen in 85 (94.4%), cough in 63 (70%) and tightness of chest in 60 (66.7%) of patients, URC was reported by 20 (22.2%) patients while 5 (5.6%) patients reported other symptoms. Breathlessness and wheezing were the most predominant symptoms followed by cough and tightness of chest.

Table 2 demonstrates the various treatment modalities opted by the patients previously for asthma. In this study, before admission, for the treatment of acute exacerbation of asthmatic attack, 66 patients used oral, 20 used injectables and 7 patients used inhalers. There were 4 patients who did not opt for any treatment.

There were 74.2% subjects who used oral and 55% patients who used injectables regularly while 13 (19.6%) patients used oral and 5 25% use injectables irregularly. There were 6(9.1%) patients who took rescue medicine in the form of oral and 4 (20%) as injectables whenever they got symptoms. Discrepancy in total is due to overlapping of treatment. Table 3 illustrates the various predisposing factors that are responsible for triggering 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 72 (80%), humidity in the house and bathrooms in 32 (35.6%), congested localities in 65 (72.2%), exposure to kitchen smoke in 65 (72.2%), over-crowding in home in 58 (64.4%) patients, presence of pets/animals/pests in 54 (60%) patients, and 21 (23.3%) to sofa sets and carpets. There was a highly significant relation between congested locality, overcrowding, kitchen smoke, humidity and initiation of asthmatic attack.

Graph 1: Predisposing factors of the patients
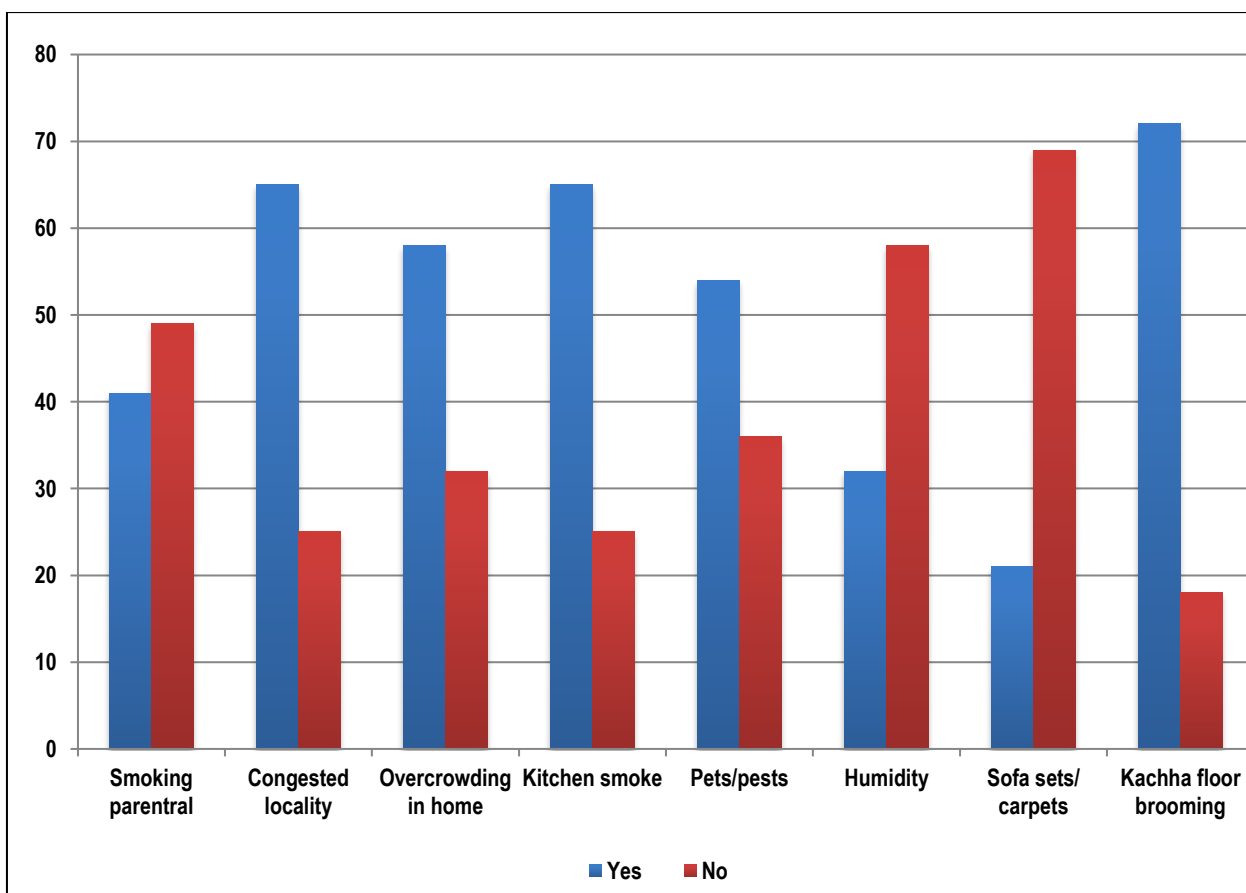
DISCUSSION

Asthma is a chronic condition in which there is inflammation and hyper-responsiveness of airways. It is one of the most commonly seen chronic disorder of childhood amongst developed nations.[17] There has been an increase in prevalence, morbidity and mortality associated with asthma during the last decade, according to some studies.[18,19] As per a study done in Latin America, the prevalence of asthma is 4.1% to 26.9% amongst children aged between 6-7 years. It is a multifactorial disease which has genetic, socioeconomic condition, environmental and gestational factors

responsible for the disease.[20,21] Moema et al[22] conducted a study amongst 494 children and concluded that smoking during pregnancy s a significant risk factor for asthma. According to our study, the prevalence of various risk factors are kuchha house brooming and dust in 72 (80%), humidity in the house and bathrooms in 32 (35.6%), congested localities in 65 (72.2%), exposure to kitchen smoke in 65 (72.2%), over-crowding in home in 58 (64.4%) patients, presence of pets/animals/pests in 54 (60%) patients, and 21 (23.3%) to sofa sets and carpets. There was a highly significant relation between congested locality,

overcrowding, kitchen smoke, humidity and initiation of asthmatic attack. On the contrary, as per the study by Moema et al[22], there was no association between overcrowding and asthma. Wheezing, cough, Chest tightness and dyspnea are the most commonly associated presenting signs and symptoms associated with asthma.[23]

According to our study In this study, the chief complaint of breathlessness was seen in 90 (100%) of patients, wheezing was seen in 85 (94.4%), cough in 63 (70%) and tightness of chest in 60 (66.7%) of patients, URC was reported by 20 (22.2%) patients while 5 (5.6%) patients reported other symptoms. Breathlessness and wheezing were the most predominant symptoms followed by cough and tightness of chest. According to a survey by ISAAC (The international study of Asthma and Allergies in Childhood Steering Committee), in India, wheezing was seen in 17.8% of children in Kottayam and 13% of children of New Delhi.[24]

In a Moema et al, there were 42.1% of children who presented with wheezing and 26.1% children presented with Nocturnal cough. There were 9.3% children who had disturbed sleep because of wheezing.

A complete and detailed history of asthma patient is very necessary and crucial for diagnosis of asthma patients. History should contain a detailed account of intensity, duration, frequency and environmental exposure responsible for asthma. Allergy was a triggering factor for asthma amongst 60-90% of children and 50% of adults.[25]

Douglass JA et al conducted a study to evaluate the usefulness of immunotherapy in managing asthma cases. They concluded that the immunotherapy group presented with decreased hayfever symptoms, skin test sensitivity to ragweed, and increased number of IgG antibodies to ragweed as compared with the placebo group.[26] Smaller sample size and no differentiation of cases was done on the basis of age, were the few limitations of our study.

CONCLUSION

Diagnosis of asthma at the right stage and assessment of the predisposing factors are very important in medical field. For this purpose there should be knowledge and awareness amongst population regarding asthma.

Breathlessness is the most commonly seen symptom that mostly all the patients present with. Humidity, overcrowding and kitchen smoke are few of the risk factors that can trigger an attack of asthma.

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