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CLINICAL PROFILE OF PATIENTS WITH ACUTE BRONCHIAL ASTHMA

Medicine

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ABSTRACT

Background: As there is limited information available on clinical profile of Bronchial asthma patients, its important for the physicians to know the distinct characteristics of Acute asthma.

Objective: To evaluate the clinical profile of Acute asthma in adult patients.

Materials and Methods: The study was a prospective study conducted on 52 patients over a period of 6 months at a Tertiary care Hospital. Asthma was diagnosed based on detailed history, clinical examination and spirometry.

Results : The clinical characteristics 52 patients participated in the study were expressed in percentage. Age distribution was 17.3% in <20yrs, 42.3% in 21-40yrs, 40.4% in >40yrs of age. Sex distribution was 63.4% of males and 36.6%of females.80.8% resided in urban area whereas 19.2% in rural area. Difficulty in breathing is the predominat symptom.Duration of illness of bronchial asthma was 19.2% (<10yrs), 50%(11-20yrs), 25%(21-30yrs) and 5.8%(>30yrs).75% of patients with seasonal variation and 25% with no seasonal variation. Diurnal variation was demonstrated in76.9% of patients but not in the rest 23.1%. Positive history of allergy is seen in 80.8% and is negative in 19.2%. 59.6% of patients have a positive family history and 40.4% do not. The frequency of illness was 38.5%(daily),21.1%(<2/week) and 40.4%(>2/ week). Most of the cases had respiratory rate of 25-30/min(82.7%) and <90 oxygen saturation (92.3%). On Peak expiratory flow rate, 61.6% had 200 – 250L/min. Almost all 52 patients had a history of intravenous steroid administration and only 26.9% had history of prophylactic therapy with inhaler . We observed those on prophylactic therapy with inhaler were not admitted for treatment (23.1%). 30% had a history of admission in Intensive medical care Unit.

Conclusion : Patients with acute asthma show a distinct clinical profile which can be used in clinical practice.

KEYWORDS

Bronchial Asthma, Acute , seasonal variation , diurnal , allergy, peak expiratory flow

INTRODUCTION

According to American Thoracic society (1987), Asthma is a clinical syndrome characterized by hyperresponsiveness of tracheobronchial tree to a variety of stimuli. The primary physiological manifestation of is airway obstruction. In the modern era, Bronchial asthma is a disease that is becoming a major health issue in many developing countries. Increased urbanisation may have modified the traditionally low incidence of bronchial asthma in the third world[1]. Although the incidence of new cases of asthma has decreased in recent years, the prevalence of asthma morbidity continues to be a significant clinical and public health issue. Asthma accounts for around one percent of all Daily Adjusted Life Years lost in the world wide population, which comes to about 15 million per year. Improper asthma control is an important factor increasing the cost of subsequent treatment (Van Ganse et al. 2002)[2]. Today in India, Bronchial asthma constitutes 0.5% of National burden of Disease. The total estimated prevalence of asthma in India is 3% (30 million patients) and a median prevalence of 2.4% over the age of 15 (Aggarwal et al 2006)[3]. According to National Family Health Survey(NFHS)-3 prevalence of asthma is higher in rural than urban areas. In India, North East regions have the highest prevalence of asthma. In Tamil nadu the prevalence of asthma was 0.9% during 2005-2006. This study intends to evaluate clinical profile of acute asthmatic patients in adults.

MATERIALS AND METHODS

Fifty two patients with acute asthma in the medical ward of our Hospital were enrolled in the study. All the fifty two patients in the study fulfilled the criteria of American Thoracic Society. Patients above the age of thirteen years based on Peak Expiratory flow rates and Forced Expiratory Volume in 1 second were eligible for the study.The diagnosis was based on spirometry. Approval from hospital ethical committee was obtained.

Study Design:

The study was a prospective study conducted on 52 patients over a period of 6 months at a Tertiary care Hospital.

Inclusion criteria: In-patients who have clinical features suggestive of bronchial asthma above 13 years of age were prospectively enrolled after informed consent .

Exclusion criteria: Patients <13 yrs age, Patients with acute respiratory tract infections, COPD and restrictive lung disease, Patients with heart failure, renal failure and hepatic failure.

Patient's detailed history including treatment history was taken.They were examined and investigated. Blood samples were collected for estimation of Blood urea, Serum creatinine and Liver function tests. ECG, ECHO, X RAY CHEST PA view were taken.

RESULTS

The study included 52 cases. Out of 52(100%) patients 33(63.4%) patients were male and 19(36.6%) patients were female.(**Table 1**) and the Male : Female ratio is 1.7 :1. This suggests male predominance in prevalence of asthma. Their mean age was 37 years (range 13-60) and the average (± SD) age of the subjects was 37±13.8 years. Urban cases(80.8%) were more [**Table 1**]. 85.4% cases of bronchial asthma were below 45 years[**Table 1**]. Diurnal variation of symptoms was present in 76.9 % cases. Maximum patients had symptoms at early morning (81.4%) and nocturnal (68%). Seasonal presentations of symptoms by cases were 75%. [**Table 2**]. Family history of asthma was in 59.6% cases. Among cases diagnosed at our center, 80.2% had history of allergy . Among respiratory symptoms, Breathlessness (100%) and cough were the most common symptoms (96.1%), followed by wheeze (92.3 %) and chest tightness (71.1%). 50% of the patients had 11 to 20 years of duration of asthma. The frequency of llness was 38.5%(daily),21.1%(<2/week) and 40.4%(>2/ week) as depicted in **Table 3**. Most of the cases had respiratory rate of 25-30/min(82.7%) and <90 oxygen saturation (92.3%). On Peak expiratory flow rate, 32 patients had 200 – 250L/min and 19 patients had >250- 300L/min. In present study, it was found that almost all 52 patients of bronchial asthma had a history of intravenous steroid administration and only 26.9% had history of prophylactic therapy with inhaler as shown in **Table 4**. We observed those on prophylactic therapy with inhaler were not admitted for treatment(23.1%). 40(76.9%) patients had a history of previous hospitalization. Of these 40, 12(30%) had a history of admission in Intensive medical care Unit.

DISCUSSION

In our study of clinical profile of asthma 33 (63.4%)out of 52 asthmatic patients were male showing male predominance of asthma as reported in other studies [3,4,5] . In our study most common age group of

presentation of asthma 21 years to 40 years (42.3%). We found asthma more common in urban patients though it may be because of urbanization with environmental hazards including air pollution . Most common risk factor for asthma was found to be allergy . Many of asthmatic patients were presented with Breathlessness followed by Cough while wheeze was also found in many of asthmatic patients i.e.in 92.3% of patients. Nevertheless, doctors must be aware that asthma is a commonly encountered and potentially fatal disease, that patients are still sub -optimally managed and much morbidity is avoidable with proper patient education and use of standardised treatment. In the present study, family history of asthma constituted about 60% cases and allergy in 80.8% cases. Most cases in our study had significant family history and allergic conditions which show that severe asthma may have familial inheritance and it is an important predisposing factor. Peak expiratory flow rate may be a more useful measure of acute asthma especially below 200 mL or less than 30% of predicted at any time during an exacerbation of asthma indicates a high degree of obstruction and suggests the more aggressive treatment of the patients [6.7.8] Our study on Peak expiratory flow rate, 32 patients had 200 – 250L/min and 19 patients had >250 – 300 L/min implies the same. In 1972, Clark showed for the 1st time that inhaled beclomethasone was effective in the management of asthma with less adverse effects than systemic steroids [9]. We observed those on prophylactic therapy with inhaler were not admitted for treatment(23.1%). The fast action of inhaled steroids in acute asthma may reflect its role different from their systemic counterparts. 40(76.9%) patients had a history of previous hospitalization. Of these 40, 12(30%) had a history of admission in Intensive medical care Unit. Adherence with followup treatment after a hospital stay is reportedly poor among patients with acute asthma.[10.11]

Table 1 Demographic profile

Demography pattern	No of cases	Percentage (%)
AGE :		
< 20	9	17.3
21 – 40	22	42.3
> 40	21	40.4
Sex :		
Male	33	63.4
Female	19	36.6
Residence :		
Urban	42	80.8
Rural	10	19.2

Table 2: Risk factors

Risk factors	No of cases	Percentage(%)
Diurnal Variation (Predominantly at night and early morning hours)		
Yes	40	76.9
No	12	23.1
Seasonal Variation (Predominantly in winter)		
Yes	39	75
No	13	25
Allergy		
Yes	42	80.8
No	10	19.2
Family History		
Yes	31	59.6
No	21	40.4

Table 3 Clinical presentation of patients

Clinical presentation	No of cases	Percentage (%)
Symptoms		
Cough	50	96.1
Breathlessness	52	100
Wheeze	48	92.3
Chest tightness	37	71.1
Duration of Asthma		
< 10 yrs	10	19.2
11 – 20 yrs	26	50.0
21 – 30 yrs	13	25.0
> 30 yrs	3	5.8
Frequency of Illness		
Daily	21	40.4
< 2 /week	11	21.1
> 2/ week	20	38.5
Respiratory rate		
<25	04	7.7
25 -30	43	82.7
>30	05	9.6
Oxygen saturation (pulse oximetry)		
<90	48	92.3
>90	04	7.7
Peak Expiratory Flow Rate (PEFR)		
<200 L/ min	01	1.9
200 – 250 L/ min	32	61.6
>250 - 300 L/ min	19	36.5

Table 4 Treatment history of patients

Treatment	No of cases	Percentage (%)
H/O corticosteroid therapy ever		
Oral	40	7.7
Intravenous	52	100
Inhaler	38	73.5
Prophylactic therapy with inhaler		
Yes	14	26.9
No	38	73.1
Previous hospitalisation		
Yes	40	76.9
No	12	23.1
Admitted in IMCU (40)		
Yes	12	30
No	28	70

CONCLUSION:

To the best of our knowledge, studies reported from India related to clinical profile of asthma patients are limited. Hence, this study was evaluated in detail about the clinical profile of patients with bronchial asthma in tertiary care hospital. The patients with Acute exacerbation of asthma remains a familiar sight in casualty despite recent advances in assessment and treatment of acute asthma. Now a days in many hospitals, casualty is increasingly used as a primary care facility for the treatment of acute asthma. Therefore it is important that high standards of care for patients with asthma are established in casualty Departments. Limitation of our study was that the study population is too small to conclude and the results cannot be generalized.

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