Study of Clinical Profile of Asthma among Pediatric Patients Attending Department of Pediatrics of a Tertiary Care Hospital, Kakinada

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Abstract: Asthma is recognized as a highly prevalent health problem affecting an estimated 300 million people of all ages, ethnic groups, and geographic origins, with an additional 100 million people estimated to be affected by 2025. Estimates indicate that, India has 20 to 28 million asthmatics and the prevalence amongst children in the age group of 5 -11 years is 10% to 15%. Aim is to study the clinical profile of childhood asthmatic patients attending the out patient and in patient wards of Department of Pediatrics in a teaching hospital. This is a prospective observational study to ascertain the clinical profile of asthmatic patients of age group 1 to 14 years. A total of 100 paediatric cases of Bronchial Asthma attending the paediatric wards of a teaching hospital between December 2014 to May 2016, were studied. All the 100 cases were divided in to 3 different age groups. Severity of Bronchial Asthma was classified in these children as intermittent /persistent types and initiated on appropriate treatment as per expert panel report 3. Bronchial Asthma was more common in male children. Its prevalence was maximum in 5-11 years age group. Cough was the most common symptom (95%) followed by wheeze (90%). Family history of asthma or allergic rhinitis was observed in 40% cases. Maximum cases of bronchial asthma were reported from August to November. Bronchial Asthma in children is prevalent in the age group of 5-11 years. Family history of asthma and allergic rhinitis are the most important risk factors for childhood asthma.
Keywords: Bronchial asthma; childhood airway disease; respiratory disease, pulmonary.

INTRODUCTION

Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation. Asthma is recognized as a highly prevalent health problem affecting an estimated 300 million people. Estimates indicate that, India has 20 to 28 million asthmatics and the prevalence amongst children 5 -11 years is in between 10% to 15% [1] .This study intends to evaluate clinical profile of asthmatic patients in different paediatric age groups.

MATERIALS AND METHODS

A prospective observational study was conducted to ascertain clinical profile of asthmatic patients of paediatric age group attending the outpatient and inpatient wards of Department of paediatrics in a teaching hospital from December 2014 to May 2016. After taking informed written consent and fulfilling inclusion criteria, a total of 100 asthmatic patients of age group 1 year to 14years were included in the study. A total of 100 children aged 1 to 14 years who were previously diagnosed and on treatment for bronchial asthma and also newly diagnosed with bronchial asthma were included in this study. Ethics committee approval was taken for the study. Diagnosis was made on the basis of detailed history and clinical examination of each patient. Once the parents had given consent for participation in the study, they were interviewed in their

mother tongue using a predesigned structured proforma. Demographic details like gender, age, residence and socioeconomic status were noted. Family history of atopic diseases was recorded. Detailed clinical history was taken and physical examination was done. Based on severity of asthma each child was classified as Intermittent or Persistent type and initiated on appropriate treatment as per Expert Panel Report 3. Routine investigations like haemogram, ESR, CRP, chest X ray, AEC were done in all patients. Special investigations like CT scan of chest was done in some patients. Data was analysed using SPSS software version 20.

RESULTS

Out of 100 cases of bronchial asthma, 56 were boys and remaining 44 were girls. This difference is not statistically significant (p value 0.71). Demographic details of cases are given in table 1.

Table-1: Demographic details of Asthmatic children

S.No	Demographic feature	Number(100)
1.	**Gender**	
	Male	56
	Female	44
2.	**Age (years)**	
	1 – 4	36
	5 – 11	56
	12 -14	8
3.	**Residence**	
	Rural	46
	Urban	54
4.	**Socioeconomic status**	
	Upper	8
	Middle	58
	Lower	34
5.	**Time of Diagnosis**	
	Previously diagnosed	74
	Newly diagnosed	26

Majority of the cases, 56% (56/100) belonged to 5-11 years age group. 36% (36/100) cases belonged to 1- 4 yr and 8% (8/100) belonged to 12-14 years age group. The mean age of children with asthma was 6.42 years. Most of the cases were from urban areas .Out of 100 cases, 54% (54/100) were from urban area and 46% cases were from rural area. In the study, 58% cases belonged to middle class, 34% cases belonged to lower class and 8% cases belonged to upper class.

Out of 100 cases, 74 cases were previously diagnosed and being treated for bronchial asthma and 26 cases were newly diagnosed. 40% cases had family history of atopic diseases like asthma or allergic rhinitis. Maximum number of cases were reported in rainy and winter seasons ie in the months of August (15%), September (14%), October (19%) and November (10%). In the present study, presenting symptoms were cough, wheeze and difficulty in breathing. Cough was the predominant symptom found in 95 % of cases followed by wheeze seen in 90% and difficulty in breathing in 83% of cases. In children of 1-4 years and 5-11 years, cough was more common than wheeze whereas in children in 12-14 years age wheeze was the commonest presenting symptom as depicted in table 2.

Table-2: Presenting symptoms of bronchial asthma

Symptoms	1-4years	5-11 years	12 and above	Total
Cough	36	54	5	95(95%)
Wheeze	33	49	8	90(90%)
Difficulty in breathing	34	45	4	83(83%)

Majority (34%) of the cases of bronchial asthma were of moderate persistent severity. intermittent type of asthma was found in 26%, mild persistent asthma in 27% of cases and Severe persistent asthma in 13% of cases as shown in table 3.

Table-3: Classification of children with bronchial asthma based on severity

Asthma severity	1-4 years	5-11years	12-14 years	Total
Intermittent	8/36(22%)	18/56(32%)	0	26/100(26%)
Mild persistent	10/36(27%)	16/56(28%)	1/8(12%)	27/100(27%)
Moderate persistent	16/36(44%)	14/56(25%)	4/8(50%)	34/100(34%)
Severe persistent	2/36(5%)	8/56(14%)	3/8(37%)	13/100(13%)
Total	36/100	56/100	8/100	100

DISCUSSION

The present study was conducted from December 2014 to May 2016 during which 100 patients were selected. These patients were either admitted in paediatric ward or were examined in the outpatient department of the teaching hospital. Patients detailed history was taken and they were examined and investigated. In the present study, 100 cases of bronchial asthma belonging to three different age groups were evaluated for socio demographic characteristics and clinical profile. Out of 100 cases, 26 cases were newly diagnosed and 74 cases were previously diagnosed. In the present study it was found that asthma was more prevalent in males than females (56% vs 44%) which is not statistically significant (p value 0.71). In the studies done by Shivakumar *et al.* [2] (62% vs 38%), Sadhanaraut *et al* [3] (63% vs.37%), and Balaji *et al.* [4] (68% vs 32%) slight male preponderance was observed. In the present study, 54% of cases were from the urban area and 46% of cases were from rural area. This is similar to study done by AK Singh *et al.* [5] (urban 65%, rural 35%). This is in contrast to the studies done by Farzana *et al.* [6] and Sadhanaraut *et al.* [3], who showed very high prevalence of asthma in urban areas (83.3% and 92.7% respectively).

In the present study, majority of cases (54%) belonged to middle class , which is similar to studies by AK Singh *et al.* [5] (55.6%) , Gaude GS *et al.* [1] (46%) and Navarro A *et al.* [7] . However Olufemi *et al* [8] and Eisner *et al.* [9] reported that most cases belonged to low socioeconomic group. The higher rate of asthma cases in our study belonging to middle class may be due to more cases coming from urban areas. In the present study, the mean age of children with bronchial asthma was 6.42 years and majority of children were in the age group of 5-11 years. Higher prevalence of asthma in school going children was also noted in the studies done by Shiva Kumar *et al.* [2] (54.87%), Balaji *et al.* [3] (54%) and Farzana *et al.* [6] (51.2%). This is in contrast to the study done by Sadhana raut *et al.* [3] who reported higher prevalence in the age group of 13 months to 5 years. The higher prevalence of asthma in school going children in the present study may be due to increased exposure to triggers like air pollutants and respiratory infections in the school. Common allergens that are known to trigger asthma were detected in all school environments where asthma prevalence rates were high. In the present study, majority of cases were reported from August to

November, which is similar to the seasonal pattern reported by AK Singh *et al.* [5]. This may be due to high levels of pollen in the environment. In the present study**,** family history of atopic disorders was found in 40% of cases, which is similar to the studies done by AK Singh *et al.* [5] (35%) and Farzana *et al.* [6] (39.2%). Balaji *et al* [4] reported family history of atopic disorders in 54% of cases and Hinchager *et al.* [10] in 60.8% of cases, where as Sadhanaraut *et al.* [3] reported family history of atopy in only 5% of cases. In the study done by Kinchoka VM *et al.* [11] 77.8% of children with asthma had positive family history of atopic disorders**.**

Cough was the most common respiratory symptom in the present study,seen in 95% of cases, followed by wheeze (90%) and difficulty in breathing (83%). This is similar to the studies done by AK Singh *et al.* [5] (98.7%) and Olufemi *et al.* [8]. This shows that nocturnal cough/cough without wheeze may be the only presenting symptom in children with asthma. In the present study,majority of the children (34%) had moderate persistent asthma.Studies done by Balaji *et al.* [4] (37%) Shivakumar *et al.* [2] (35%) and A.K.Singh *et al.* [5] (42.3%) also reported similar prevalence of moderate persistent asthma. Only 13% of study population had severe persistent asthma. Balaji *et al.* [4] (11%) also showed a similar pattern. Shivakumar *et al.* [2] (22%) and A.K. Singh *et al.* [5] (19%) showed higher prevalence of severe persistent asthma. In the present study 26% of children had intermittent asthma Balaji *et al.* [4] showed a similar pattern (29%). In the studies done by Shivakumar *et al.* [2] and A.K Singh *et al.* [5] less number of patients had intermittent asthma.

CONCLUSION

Clinical profile of bronchial asthma in the present study showed higher prevalance of asthma in males and in urban areas. Most of the children belonged to mid socioeconomic group and prevalance was more during the winter season among the school going children. Family history of asthma was the most important risk factor and cough may be the only presenting symptom in few children with bronchial asthma and very few children had severe persistent asthma.

REFERENCES

1. Gaude GS. Factors Affecting non-adherence in Bronchial Asthma and Impact of Health Education. Indian J Allergy Asthma Immunol. 2011;25(1):1-8.
2. Shivakumar R. A clinical profile and factors associated with bronchial asthma in pediatric patients at tertiary health care center. International medical journal. 2016 July; 3(7): 647-649.
3. Sadhana R. Smita M, Wagh, Rakesh C. A Study of Clinical Profile Of Asthma Of Pediatric Age Group. 2015 Dec; 14(12): 91-93.
4. Balaji Md, Nair AK. Clinical Profile And Triggers Of Childhood Asthma Among Patients Diagnosed At Paediatric Asthma Clinic. International Journal of Preventive and Therapeutic Medicine. 2015 Jun 28;2(3).
5. Singh AK, Jain VK, Mishra M. Clinical profile of bronchial asthma patients reporting at respiratory medicine outpatient department of teaching hospital. Indian Journal of Allergy, Asthma and Immunology. 2015 Jan 1;29(1):3.
6. Beig FK, Sachdeva S, Ahmad A. Symptom monitoring and quality of life in children with asthma: Scope for self-management in routine care. Indian Journal of Allergy, Asthma and Immunology. 2014 Jan 1;28(1):8.
7. Navarro A, Valero A, Julia B, Quirce S. Coexistence of asthma and allergic rhinitis in adult patients attending allergy clinics: ONEAIR study. J Investig Allergol Clin Immunol. 2008 Jan 1;18(4):233-8.
8. Desalu OO, Salami AK, Oluboyo PO. Self-reported risk factors of asthma in a Nigerian adult population/Nijerya eriskin populasyonda olgular tarafindan tanimlanan astim risk faktorleri. Turkish Thoracic Journal. 2009 Jun 1:56-63.
9. Eisner MD, Katz PP, Yelin EH, Shiboski SC, Blanc PD. Risk factors for hospitalization among adults with asthma: the influence of sociodemographic factors and asthma severity. Respiratory research. 2000 Dec 29;2(1):53.
10. Hinchageri SS, Neelkanth RP, Khavane K, Bhanda S, Swarnakamala K. Assessment of asthma medication adherence and factors affecting to medication adherence in asthma patients by clinical pharmacist. Irjp. 2012; 3(3): 211-215.
11. Vanessa Mika Kinchoku, Irai Santana Oliveira, Letícia Abe Watanabe. Factors associated with asthma control in a paediatric reference rev Paul pediatr. 2011;29(4):591-8.