



Assessment of Prevalence, Risk Factors, Treatment in Asthamatic Patients in a South Indian Hospital

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ABSTRACT

Asthma creates a substantial burden on individuals and families as it is more often under-diagnosed and under-treated. India has an estimated 15-20 million asthmatics. Recognizing the signs and symptoms of asthma is important so that treatment and other interventions can begin early. Prospective observational study was conducted in the department of general medicine, RIMS, Kadapa for the period of 6 months aimed to assess the prevalence, risk factors and treatment in asthmatic patients. Patients were enrolled into the study on the basis of inclusion and exclusion criteria. A total of 122 asthma diagnosed patients were recruited under the inclusion criteria. Our study establishes that the prevalence of bronchial asthma was more in males 79 (64.75%) than in females 43 (35.25 %). The prevalence rate of our study was 20.71 %. Our study found that most patients (35.25%) are using multiple drug therapy, followed by triple combination therapy (33.61%). Our study concluded that the asthma has low incidence and prevalence rate among the total respiratory diseases patients admitted in the hospital with the most predominant risk factors as dust, smoke and climate variation. Most patients have used multiple drug therapy for treatment due to severity of disease.

Keywords: Asthma, Prevalence, Risk factors, Treatment

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Received 13 November 2013, Accepted 16 November 2013

Please cite this article in press as: Reddenna L. *et al.*, Assessment of Prevalence, Risk Factors, Treatment in Asthamatic Patients in a South Indian Hospital. American Journal of Pharmacy & Health Research 2013.

INTRODUCTION

Asthma is one of the oldest common diseases. The Global Initiative for Asthma defines “Asthma as a chronic inflammatory disorder of the airways associated with increased airway hyper-responsiveness, recurrent episodes of wheezing, breathlessness, chest tightness, and coughing, particularly at night/early morning.¹ Airway inflammation produces airflow limitation through acute broncho constriction; chronic mucus plugs formation and airway wall swelling or remodeling².” Asthma causes inflammation in the trachea and the lungs and the walls of trachea becomes tightened thus giving much difficulty in breathing³. The word 'Prevalence' of Asthma usually means the estimated population of people who are managing Asthma at any given time (i.e. people with Asthma). The term 'Incidence' of Asthma means the annual diagnosis rate or the number of new cases of Asthma diagnosed each year (i.e. getting Asthma). According to World Health Organization (WHO) estimates 300 million people suffer from Asthma, 2, 55, 000 people died of Asthma in 2005 and over 80% of Asthma deaths are reported from low and lower-middle income countries. Asthma creates a substantial burden on individuals and families as it is more often under-diagnosed and under-treated⁴. In India, an estimated that 57,000 deaths were attributed to Asthma in 2004 and it was seen as one of the leading cause of morbidity and mortality in rural India. India has an estimated 15-20 million asthmatics. The prevalence of asthma in different countries varies widely, but the disparity is narrowing due to rising prevalence in low and middle income countries and plateauing in high income countries.⁵ The prevalence of asthma has risen in affluent countries over the last 30 years but now appears to have stabilized, with ~10–12% of adults and 15% of children affected by the disease. Work place conditions, such as exposure to fumes, gases or dust, are responsible for 11% of asthma cases worldwide. About 70% of asthmatics also have allergies. Occupational asthma contributes significantly to the global burden of asthma, since the condition accounts for approximately 15% of asthma amongst adults.⁶ Recognizing the signs and symptoms of asthma is important so that treatment and other interventions can begin early. If severe symptoms are present, it is vital to begin the appropriate treatment immediately.⁷ There is no medication to cure asthma. Asthma medications are used to stop, control and prevent asthma symptoms. So, the present was aimed to assess the prevalence, risk factors and treatment in asthmatic patients.

MATERIALS AND METHODS

Place of Study: Department of General Medicine, RIMS, Kadapa

Period of study: 6- months

Study population: Asthmatic patients

Study size: 122

Study design: Prospective observational study.

Patient enrolment: patients are enrolled in the study based on inclusion and exclusion criteria.

Inclusion criteria:

Patients of either sex of 18 or above 65 yrs and who are with history of bronchial asthma and currently diagnosed with bronchial asthma with or without co-morbidities and prescribed with anti-asthmatic medications.

Exclusion criteria:

Bronchial asthma patients who are having other pulmonary complications, TB, HIV and any other immunosuppressive disease patients, hepatic and renal disease patients are excluded from the study.

All necessary and relevant baseline information were collected on a Patient Data Collection Performa which includes patient demography, admitting or provisional diagnosis data, past and present medication history, social history, personal history, family history, laboratory data, radiographic data, physician medication order sheet, nurses medication administration record(drug chart) and any other verbal communication data with patients.

RESULTS AND DISCUSSION

Asthma is one of the diseases with huge figure of people pretentious around the world. A total of 122 asthma diagnosed patients were recruited under the inclusion criteria. Out of 122 subjects, 79 (64.75%) were male and 43 (35.25%) were females. We categorized the patients with respected to their age groups, which expressed in table 1.

Table 1-It displays the distribution on the basis of age

Age (in years)	N	%
18-25	3	2.45
26-35	6	4.92
36-45	7	5.73
46-55	19	15.57
56-65	46	37.70
>65	41	33.60

*n= total no. of patients

Patient distribution based on Occupation:

Out of 122 patients, majority of them (44.26%) were workers (Brick and cement industry) and 33 (27.04%) cultivators which are represented in table 2.

Table 2- It expresses the patient distribution based on occupation

Occupation	N	%
House wife	13	10.65
Workers	54	44.26
Business	7	5.74
Agriculture	33	27.04
Textile	3	2.46
Employee	12	9.83

*n= total no. of patients

Patient Distribution based on Educational status:

Out of 122 patients, majority 89 (72.95%) of them were illiterate and 33(27.04%) literate.

Patient Distribution based on location:

Out of 122 patients, most of them was living in rural area 93(76.22%) than urban area 29(23.77%).

Patient Distribution based on socio-economic status:

Out of 122 patients most of them were very poor 56 (45.90%) of earning < 2000rs/- per month \, 38(31.14%) were poor of earning 2001-5000rs/-per month, 20(16.34%) were moderate of earning 5001-7000rs/-per month, 7(5.74%) were upper middle class earning 7001-10,000rs/-per month , 1(0.82%) were high class earning >10,100rs/-per month, expressed inn table 3.

Table 3- It shows patient distribution based on socio-economic status

Socio-economic status	N	%
Very poor	56	45.90
Poor	38	31.14
Moderate	20	16.34
Upper Middle Class	7	5.74
High Class	1	0.82

*n= total no. of patients

Patient Distribution based on social habits:

Out of 122 patients, most of them 50 (41.08%) were having smoking and drinking alcohol habits, which is represented in table 4.

Table 4- It displays patient distribution based on Habits

Social Habits	N (%)
Smoking	27 (22.13)
Drinking Alcohol	5 (4.10)
Cooking With Sticks	15 (12.30)
Chewing Tobacco	3 (2.46)
Betal nut Chewer	4 (3.28)
Smoking + Drinking Alcohol	50 (41.08)
None	18 (14.75)

*n= total no. of patients

Patient Distribution based on family history:

Out of 122 patients, most of them 98 (80.32%) had no family history of asthma.

Patient Distributions Based on Allergic History:

Out of 122 patients, most of them 34 (27.87%) were allergic to dust, which is represented in table 5.

Table 5- It displays patient distribution based on Allergic History

Allergy History	n	%
Dust	34	27.87
Pollution	3	2.46
Climate	18	14.75
Animal Dander (cat)	2	1.64
Dust+ Pollution	6	4.92
Dust+ Climate	29	23.77
Dust+ Pollution+ Climate	16	13.11
Pollution+ Climate	8	6.56
Others(GERD, medicines)	4	3.28
Nil	2	1.64

*n= total no. of patients

Patient Distribution Based on Duration of Bronchial Asthma:

We categorized the patients based on their duration of Bronchial Asthma attack. Majority of them were 61(50%) with duration of 2-5 years which is represented in table 6.

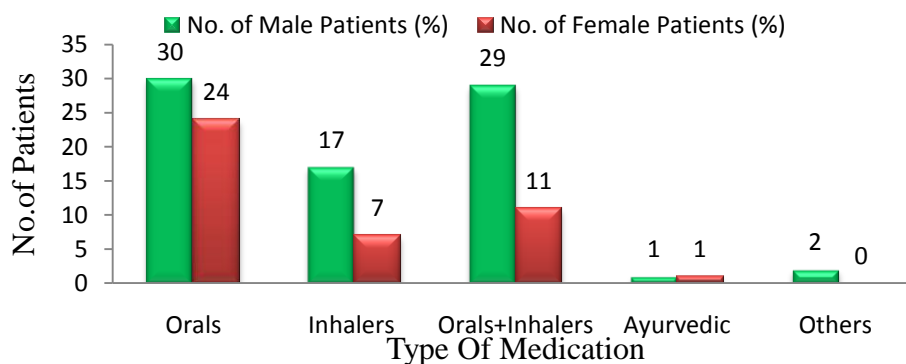
Table 6- It shows patient distribution based on duration of bronchial asthma

Duration	n	%
1-6 months	9	7.38 %
7-12 months	19	15.57 %
2-5 years	61	50 %
>5 years	33	27.05 %

*n= total no. of patients

Patient Distribution Based on Past Medication History:

Out of 122 patients, most of them 54(44.6%) were taking tablets, which is represented in figure1

**Figure 1- It shows Patient Distribution based on Past Medication History**

Patient Distribution on Admissions Related or Unrelated to Asthma:

We distributed the patients based on hospital admissions. Out of 122 patients most of them 105(86.06%) were admitted in hospital due to Bronchial Asthma and some of them 17(13.93%) were not related to Asthma but they have past history of Bronchial Asthma.

Patient Distribution Based on Bronchial Asthma symptoms:

Among the symptoms of Bronchial Asthma, SOB (shortness of breath) was found to be highest 92 (75.41%) than other symptoms, represented in figure 2.

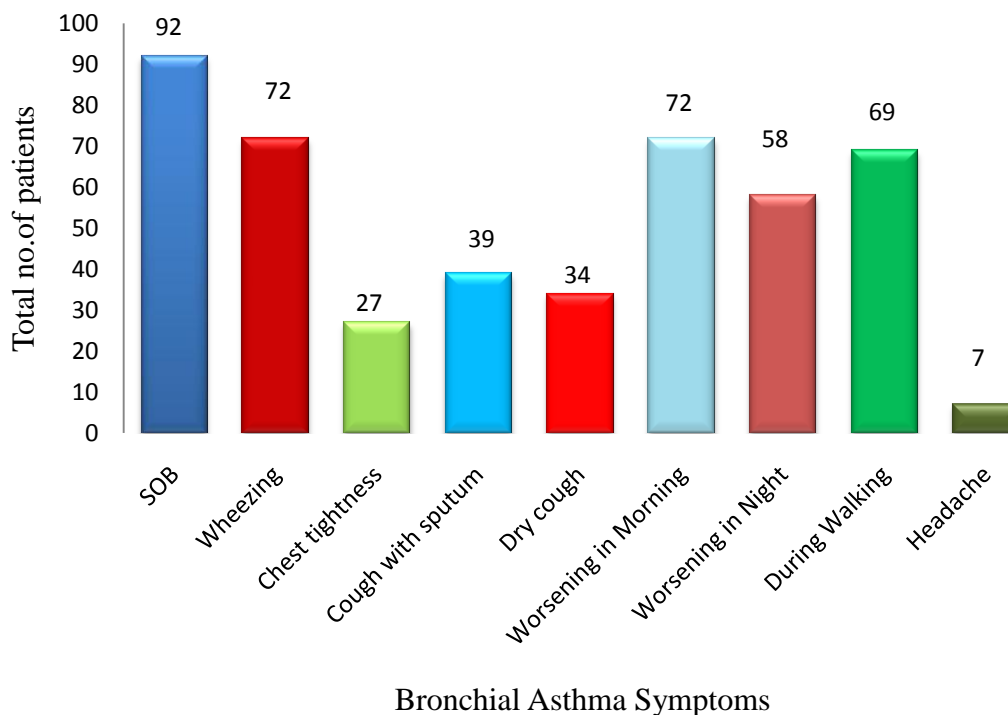


Figure 2- It shows patient distribution based on bronchial Asthma symptoms

Patient Distribution Based on Drug Therapy:

Out of 122 patients, 9 (7.38%) were treated with single drug, 29 (23.77%) were treated with 2-drug regimen, 41 (33.61%) were treated with 3-drug regimen and 43 (35.25%) were treated with 4-drug regimen. 9 (7.38%) were treated with monotherapy, in that beta-agonists (Salbutamol) given to 4 (3.28%) patients, methyl xanthenes (Deriphylline) given to 4 (3.28%) and corticosteroids (Hydrocortisone) given to 1 (0.82%). It was observed that a total of 4 combinations of 2-drug regimen were given to patients. Out of these combinations Beta-agonists + Methyl xanthenes was given to majority of patients 23(79.31%), represented in table 7.

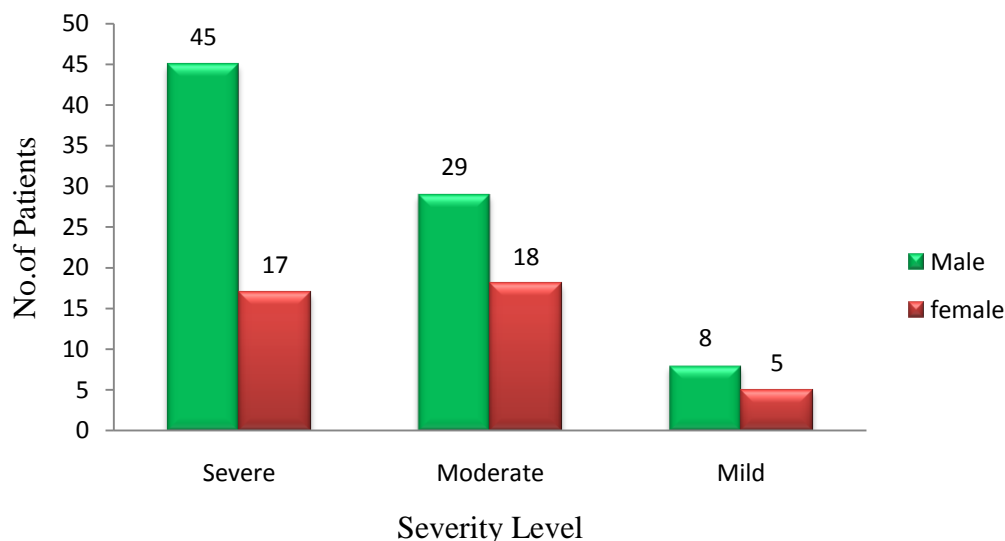
Table 7- It shows patient distribution based on 2 drug therapy

Combination of classes	%
Beta-agonists(salbutamol) + Beta-agonists(salbutamol)	3.45
Beta-agonists(salbutamol) + Methyl xanthenes (Deriphylline)	79.31
Beta-agonists(salbutamol) + Anti cholinergics (Ipratropium Bromide)	3.45
Corticosteroids (Hydrocortisone) + Anti cholinergics (Ipratropium Bromide)	13.79

We distributed the patients based on 3-Drug regimen. Total of 2 combinations of 3-drug regimen was given to treat patients, β -agonists + Corticosteroids + methyl xanthenes combination was prescribed majorly to 27(65.85%) and least prescribed combination was β -agonists+ methyl xanthenes+ Anti-cholinergics i.e. 14(34.14%). Usage of 4-drug regimen (β -agonists+ Corticosteroids+ methyl xanthenes+ Anti cholinergic) is common and was given to 43 patients.

Patient Distribution Based On Severity Level:

In our study majority of patients are had severe asthma 50.82 (50.82%) and least are had mild asthma 10.66 (10.66%). which is represented in figure 3.

**Figure 3- It displays the asthma severity level**

The incidence rate of asthma is 0.04% and Prevalence was 20.71 %. Asthma is one of the diseases with huge figure of people pretentious around the world. The worldwide prevalence of asthma ranges from 1-18% of the population in diverse countries. ⁸ The incidence rate of our study is 0.04% as total number of 22,458 patients admitted in RIMS general medicine department in which only 9 cases were newly diagnosed, rest of 113 cases are having past history of bronchial asthma which showed no similarity with the study conducted by Harry Teichtahl et al.⁹ Our study establish that the prevalence of bronchial asthma was more in males 79 (64.75%) than in females 43 (35.25 %) which is supported by Mohammed Alharbia et al

study¹⁰ with prevalence rate of 35.1%. The prevalence rate of our study was 20.71%. As per our study it was found that the predominant risk factors for Asthma are dust (27.87%), dust+ climate (23.77%) and climate variation (14.75%) which showed similarity with the study conducted by kabila et, al¹¹ that resulted as dust was predominant factor and supported our study. Our study found that most patients (35.25%) are using multiple drug therapy, followed by triple combination therapy (33.61%). Vijaya Kumar. S et al¹² conducted a study on “Drug utilization and prescription monitoring of asthma patients “and combination therapy (80%) was used which showed similarity with our study where multiple drugs are used widely by asthma patients. Multiple drug therapy is most efficient in asthma patients.

Our study concluded that the asthma has low incidence and prevalence rate among the total respiratory diseases patients admitted in the hospital with the most predominant risk factors as dust, smoke and climate variation. Most patients have used multiple drug therapy for treatment due to severity of disease.

ACKNOWLEDGEMENTS

The authors is thankful to Dr. T. Ram saran, Medical Superintendent, Rajiv Gandhi Institute of Medical Sciences, Kadapa for providing an opportunity to carry out this work and greatly acknowledges Dr. K. Ravindra Reddy, Principal, P. Rami Reddy Memorial College of Pharmacy, Kadapa. The authors thank the staff of pharmacy practice department. The authors have no conflicts of interest to disclose.

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