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EVALUATION OF DRUG PRESCRIBING PATTERN IN PATIENTS WITH BRONCHIAL ASTHMA

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ABSTRACT

Asthma is a chronic inflammatory disease of the airways characterized by bronchial hyper responsiveness and airflow limitation**.** The present study was done to evaluate the drug prescribing pattern in bronchial asthmatic patients. From the data analysis of 55 patients, 56.3% of patients were found to be male. Among all the patients involved in the study 40% were smokers and 20% were alcoholic. This concludes that higher prevalence of asthma was associated with active smoking. Our study showed that the major precipitating factors for asthma were allergies (75%), followed by infections (18%) and unknown causes (7%). In our study, among the symptoms of bronchial asthma, shortness of breath (89.09%) was found to be highest than other symptoms. In our study majority of patient suffered from mild intermittent asthma (60%) and very few with severe persistent asthma (9.09%). Since asthma patients often require more than one drug for control of asthma symptoms hence combination are required to treat asthma. In this study majority of the patients received multiple drug therapy. In multiple drug therapy, two-drug combinations were as more widely prescribed than combinations of three/four drugs. Majority of the patients received combination therapy of beta 2 agonist and glucocorticoids via inhalational routes.

KEYWORDS: beta 2 agonist and glucocorticoids.

INTRODUCTION

Asthma is a chronic inflammatory disease of the airways characterized by bronchial hyper responsiveness and airflow limitation.[1] It is characterized by recurrent attacks of breathlessness and wheezing that may vary in severity and frequency from person to person. These episodes are usually associated with widespread, but variable airflow obstruction within the lung that is often reversible either spontaneously or with treatment.[2]

The goal of asthma treatment is to achieve and maintain clinical control. Clinical studies have shown that asthma can be effectively controlled by intervening to suppress and reverse the inflammation as well as treating the bronchoconstriction and related symptoms. Medications to treat asthma can be classified as controllers or relievers.[3] Controllers are medications taken daily on a long-term basis to keep asthma under clinical control chiefly through their anti-inflammatory effects. They include inhaled and systemic glucocorticoids, leukotriene receptor antagonists, long-acting inhaled β2-agonists in combination with inhaled glucocorticoids, sustained-release theophylline etc. Inhaled glucocorticoids are the most effective controller medications currently available. Relievers are medications that act quickly to reverse bronchoconstriction and relieve its symptoms. They include rapid-acting inhaled β2-agonists, inhaled anticholinergic, short-acting theophylline, and short-acting oral β2-agonists. Thus these medications that control and relieve asthma can be used for prophylaxis and treatment of acute episodes.[1]

AIM AND OBJECTIVES

To evaluate the drug prescribing pattern and the risk factors for bronchial asthma.

MATERIALS AND METHODS

Study design: Retrospective study

The study was done at the pulmonary department of Pushpagiri medical college, Thiruvalla after obtaining approval from Institutional Ethics Committee. The duration of the study was about 6 months. The patients were selected based on the inclusion and exclusion criteria. All adult patients who were diagnosed with bronchial asthma were selected for the study. Patients with COPD and children were excluded from the study.

The patients were classified into four age groups. A standardized data collection form was used to record all the details. The data collection form provides the information regarding the demographic details of the patient which includes age, sex, social habits, precipitating factors, symptoms of asthma, severity of asthma, past history, family history, past medication

history, diagnosing pattern and treatment given to the patient.

Patient's family history, social habits such as alcoholism, cigarette smoking and tobacco usage were recorded and their percentages were calculated. Patient's allergies towards dust, pollen, food etc. and any preinfections such as bronchitis, LRTI, hay fever, pneumonia, pharyngitis, eczema were recorded and percentage were calculated. The Global Initiative of Asthma (GINA) subdivided asthma by severity based on level of symptoms, airflow limitations and lung function variability into four categories: Mild intermittent, Mild persistent, Moderate persistent and Severe persistent and in this study their percentage were calculated. According to which technique (PFT, Chest X-ray) the patient was diagnosed were recorded and percentage were calculated. Treatment given to the patient according their symptoms of disease were recorded. From the prescriptions collected information such as drugs prescribed, dose, frequency, route of administration were recorded. From this the most commonly used drugs and their preferred route of administration and the method of therapy (mono or combination therapy) were found out. A total of 55 prescriptions were screened and the results were tabulated in numbers and percentage.

RESULTS
Prescription data of 55 patients were collected for the study as per the inclusion and exclusion criteria. The study variables were age, sex, smoking, occupation, family history, clinical diagnosis, anti- asthmatics prescribed, single/multiple drug therapy, brand name, generic name, dosage forms of anti-asthmatics.

Table 1: Gender distribution of the study patients.

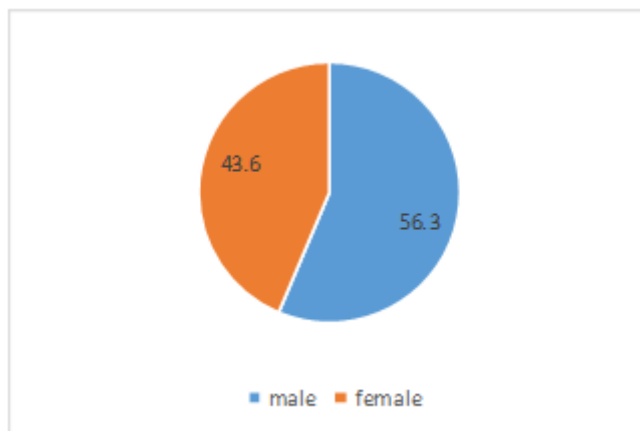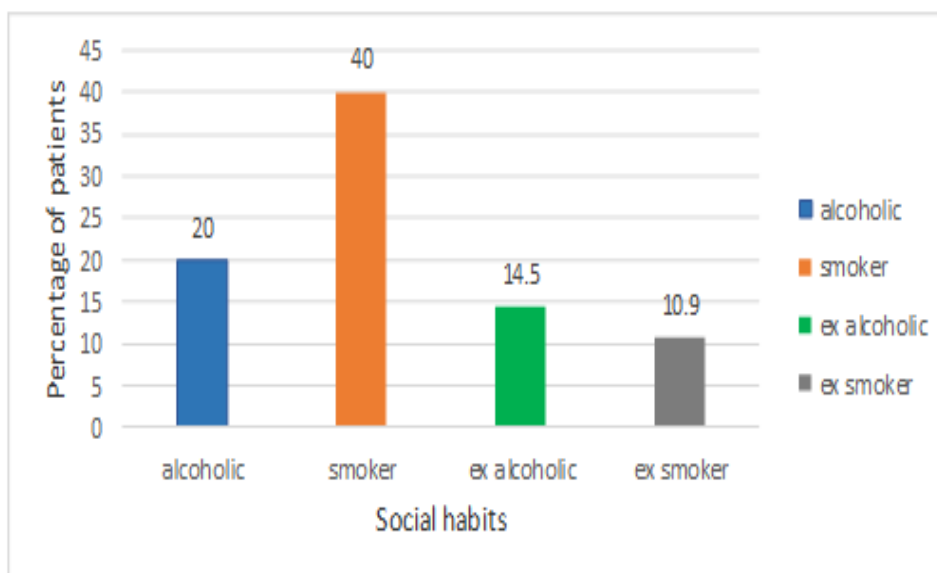| Gender	No. (%) of patients
Male	31(56.3%)
Female	24(43.6%)

Figure 1: Gender distribution of the study patients.

Out of 55 patients, 31 (56.3%) patients were females and 24(43.6%) patients were males.

Table 2: Age distribution of the study patients.

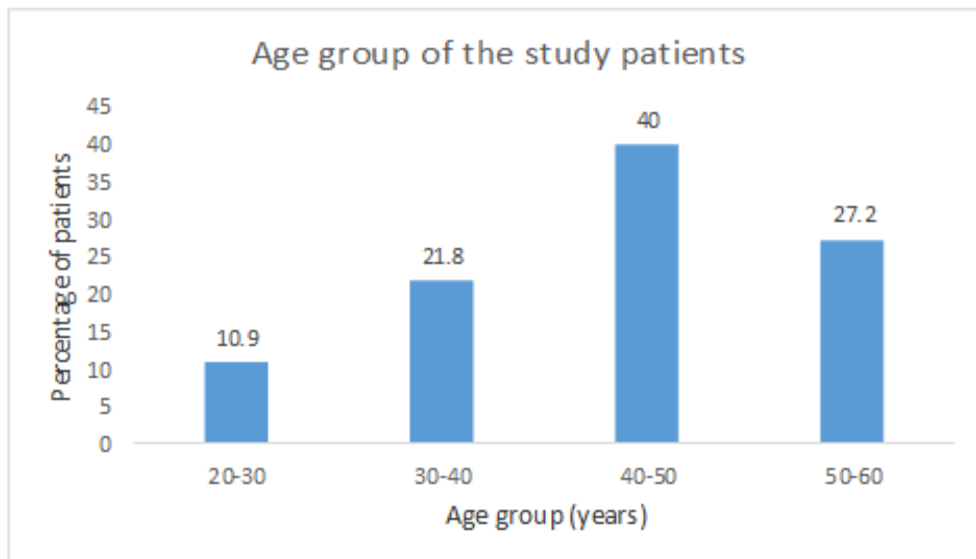| Age groups	No.(%) of patients
20-30	6 (10.9%)
30-40	12 (21.8%)
40-50	22 (40%)
50-60	15 (27.2%)

Figure 2: Age distribution of the study patients.

The age distribution of the study patients showed that 40% of patients were under the age group of 40-50 years.

Table 3: Distribution of patients based on social history.

Distribution of patients based on precipitating factors.

The patients were divided into four categories; alcoholics, smokers, ex-alcoholics and ex-smokers. In that 40% of patients were smokers.
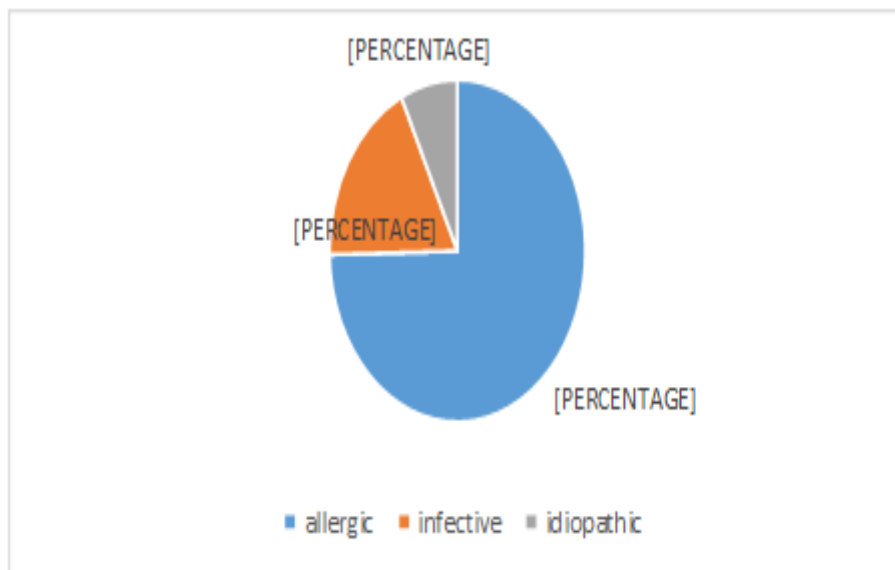
From the study, it was found that 75% of patients had allergic bronchial asthma, 18% with infective type and

7% with idiopathic bronchial asthma Distribution of patients based on symptoms of asthma.
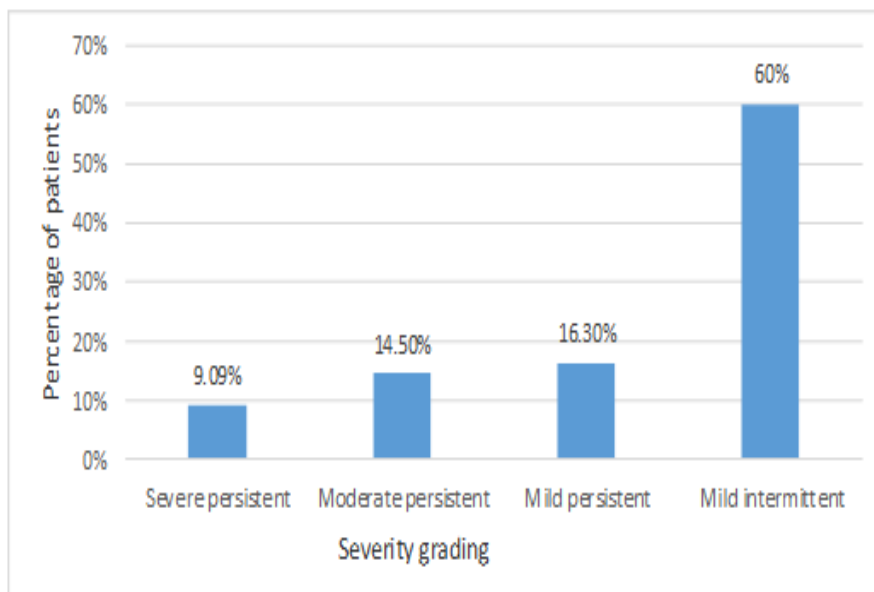
Distribution of patients based on symptoms of asthma.
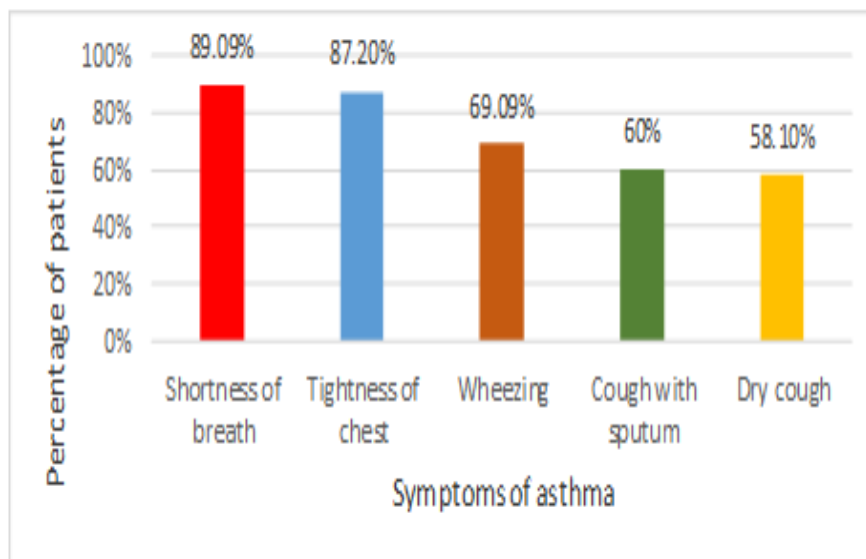
From the study, it was found that 89.09% of patients had shortness of breath, 87.2% with chest tightness, 69.09% with wheezing, 60% had cough with sputum and 58.1% has dry cough.

Distribution of patients based on severity grading.

In our study, majority of the patients had mild intermittent asthma (60%) and 16.3% had mild persistent asthma, 14.5% had moderate persistent and only 9.09% had severe persistent asthma.

The results of this study showed that most of the patients received multiple drug therapy compared to single drug therapy. In multiple drug therapy, two-drug combinations were as more widely prescribed than combinations of three/four drugs.

Table 4: Drug therapy regimen of the study patients.

Drug therapy	No.(%) of patients
Single drug	9 (16.3%)
Two drug	31 (56.3%)
Three drug	8 (14.5%)
Four drug	7 (12.7%)

Table 5: Prescribing pattern of anti-asthmatic drugs.

Anti-asthmatic drugs	Individual therapy	Combination therapy	Total
β agonist	5	23	28
Methylxanthines	11	19	30
Corticosteroids	29	48	77
Leukotriene antagonist	12	18	30
Antihistamines	8	3	11

Majority of the patients received combination therapy of beta 2 agonist and glucocorticoids via inhalational routes.

Table 6: Distribution of drugs according to route of administration.

Route of administration	No.(%) of patients
Oral	14 (25.4%)
Inhalational	36 (65.4%)
Others	5 (9.09%)

DISCUSSION

The major focus of our study was to evaluate the drug prescribing pattern in bronchial asthma patients. A retrospective study was conducted at the pulmonary department of Pushpagiri Medical College Hospital.

From the data analysis of 55 patients, 56.3% of patients were found to be male. This is synonymous with the study conducted in Andhra Pradesh by Languluri Reddenna et al.[3] Among all the patients involved in the study 40% were smokers and 20% were alcoholic. This concludes that higher prevalence of asthma was associated with active smoking. Studies done by PR Gupta and DK Mangal also conclude the same.[4] Our study showed that the major precipitating factors for asthma were allergies (75%), followed by infections (18%) and unknown causes (7%). Similar results were also given by the studies of T. Rajathilagam et al.[5] In our study, among the symptoms of bronchial asthma, shortness of breath (89.09%) was found to be highest than other symptoms. Our study is similar to the study done by Languluri Reddenna et al.[3] In our study majority of patient suffered from mild intermittent asthma (60%) and very few with severe persistent asthma (9.09%). These results were contrast to study conducted by Languluri Reddenna et al showed higher number in severe persistent asthma. Since asthma patients often require more than one drug for control of asthma symptoms hence combination are required to treat asthma. In this study majority of the patients received multiple drug therapy. In multiple drug therapy, two-drug combinations were as more widely prescribed than combinations of three/four drugs. This is analogous with the study done by Patel Pinal D et al.[6] Majority of the patients received combination therapy of beta 2 agonist and glucocorticoids via inhalational routes.

REFERENCES

1. Joint Commission on the Accreditation of Healthcare Organizations. 1995 comprehensive accreditation manual for hospitals. Oakbrook Terrace (IL): Joint Commission on the Accreditation of Healthcare Organizations, 1994.
2. Shimpi RD, Salunkhe PS, Bavaskar SR, Laddha GP, Kalam, A. (2012) Drug utilization evaluation and prescription monitoring in asthmatic patients, International Journal of Pharmacy and Biological Sciences, 2012; 2(eISSN: 2230-7605): 117-122.
3. Reddenna Languluri, Krishna Rama Tedlla, Basha Ayub Shaik, Venugopal Donthu. Assessment of Prevalence, Risk factors, Treatment in Asthmatic patients in a South Indian hospital. American Journal of Pharmacy and Health Research, 2013; 1(8): 107-115.
4. Gupta PR, Mangal DK. Prevalence and risk factors of bronchial asthma in adults in Jaipur District of Rajasthan (India). Lung India, 2006; (23): http://www.lungindia.com (accessed 09 March 2015): 53-58.
5. Rajathilagam T., Sandozi Tasneem, Nageswari AD., Paramesh P., Rani Jamuna R. Drug Utilization Study in Bronchial Asthma in a Tertiary Care Hospital' International Journal of Pharmaceutical Applications, 2012; 3(ISSN 0976-2639): 297-305.
6. Patel PD, Patel RK, Patel NJ. Analysis of Prescription Pattern and Drug Utilization in Asthma Therapy. International Research Journal of Pharmacy, 2012; 3(7): 257-260.