

**“PROFILE OF DRUG UTILISATION IN ACUTE BRONCHIAL
ASTHMA IN A TERTIARY CARE HOSPITAL”**

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ABSTRACT

Background: Bronchial Asthma is a serious global health problem. A wide range of different classes of medications including Bronchodilators and Anti-inflammatory drugs are now available for the treatment of Asthma. **Objectives:** Prospective, drug utilization study done at Rajarajeswari Medical college and Hospital to evaluate the pattern of drugs used in acute bronchial asthma and their rationality and to identify any immediate adverse drug reactions, related to drugs administered. **Methods:** Prospective, observational study was conducted for 5 months including 300 patients in Casualty, Department of General Medicine IPD and OPD at Rajarajeswari Medical college and Hospital. **Results:** Corticosteroids are the most commonly used drugs where Hydrocortisone was prescribed in 81% of the patients followed by Theophylline(78%) and Salbutamol(72%). Most of the

patients (59%) got both Inhalational and Intravenous treatment. **Conclusion:** This study revealed the extensive use of Steroids, β_2 -agonists and Xanthines as the drug of choice for acute bronchial asthma. Xanthines could have avoided due to their adverse effects and instead could have been used newer Antiasthmatics.

KEYWORDS: Bronchial asthma, Bronchodilators, Corticosteroids, Inhalation.

INTRODUCTION

Asthma is bronchial inflammation causing swelling and airways constriction, resulting in breathing difficulties. The symptoms of asthma include recurrent episodes of wheezing, breathlessness, chest tightness and cough.^[1]

Many mediators are now recognized to be involved in asthma and the key mediators are chemokines, leukotrienes, cytokines, histamine, nitric oxide and prostaglandins.^[2,3]

Though asthma is most common in developed countries, it is becoming increasingly common in developing countries. Approximately 300 million people worldwide currently have bronchial asthma. Prevalence's are as high as >10% in adults and > 30% in children in some areas.^[4]

Severity of Bronchial asthma is classified into mild intermittent, mild persistent, moderate persistent and severe persistent asthma.^[5]

A wide range of different classes of medications including Bronchodilators and Anti-inflammatory drugs are now available for the treatment of Asthma and selection of the optimal treatment combination of agents is essential to ensure that the disease is well controlled.

The objective of this study was to evaluate the pattern of drugs used in acute bronchial asthma and their rationality and to identify any immediate adverse drug reactions, related to drugs administered.

MATERIALS AND METHODS

After taking clearance from Institutional Ethics Committee a Prospective, observational cross sectional study was conducted for 5 months (October 2013- Feb 2014) in Casualty, Department of General Medicine IPD and OPD at Rajarajeswari Medical college and Hospital.

Data was collected from case records of patients with acute bronchial asthma in the proforma designed for the study including.

1. Demographic profile of patients
2. Disease data
3. Investigations conducted

4. Drugs data
5. Adverse drug reactions.

Sample size- 300

Inclusion criteria

1. Patients suffering from Acute Bronchial Asthma
2. Patients above 18 years
3. Patients willing to participate in the study.

Exclusion criteria

1. Patients with other co-morbid conditions like COPD/HT/CCF/Emphysema/Eczema/ Diabetes Mellitus, TB and Malignancies.
2. Patients not willing to participate.
3. Children.

The collected data was analyzed to calculate the Prescribing indicators & Patient indicators.

Prescribing indicators

- a) % of different classes of drugs used.
- b) % of antibiotic prescription.
- c) % of different combinations of routes of drug administered.

Patient indicators

- a) Male female ratio
- b) Age distribution all patients
- c) Average duration of bronchial asthma in years.
- d) Grading of asthma severity.
- e) % of patients with family history of asthma.

Statistical Method

The data collected was analyzed statistically using descriptive statistics. Wherever necessary, the results are depicted in the form of percentages and graphs.

RESULT

Out of 300 patients, 177(59%) are male and 123(41%) female. Age group of 51-60 years with 98(32.6%) patients were the majority, 76(25.3%) patients in 61-70 years, 55(18.3%) patients above 70 years. Corticosteroids are the most commonly used drugs where Hydrocortisone was prescribed in 81% of the patients followed by Theophylline(78%) and Salbutamol(72%). Short acting β 2 agonist Salbutamol(72%) is preferred over long acting Salmeterol(22%). Most of the patients (59%) got both Inhalational and Intravenous treatment, 32% Inhalation+IV+Oral and 8% of the patients got only Inhalational therapy. Adverse drug reactions were seen in 21% of the patients which included Palpitation(9%), Tremor (8%), Vomiting(3%) and Dry mouth(1%).

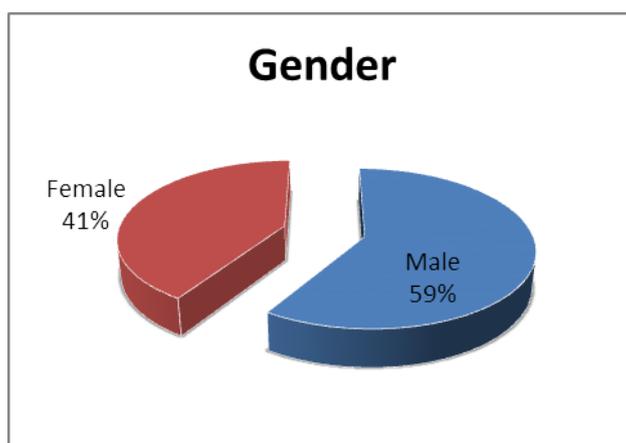
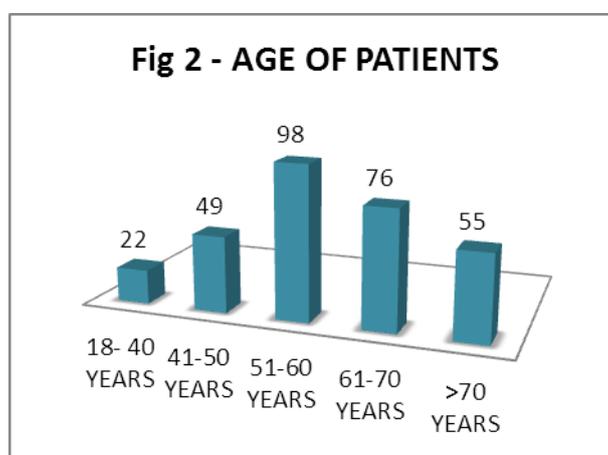
**Fig 1: Gender****Fig 2: Age of Patients.**

Table 1: Severity grading of asthma.

Severity grading of asthma	No of Patients
Mild intermittent	178(59.3%)
Mild persistent	93(31%)
Moderate persistent	26(8.66%)
Severe persistent asthma	3(1%)

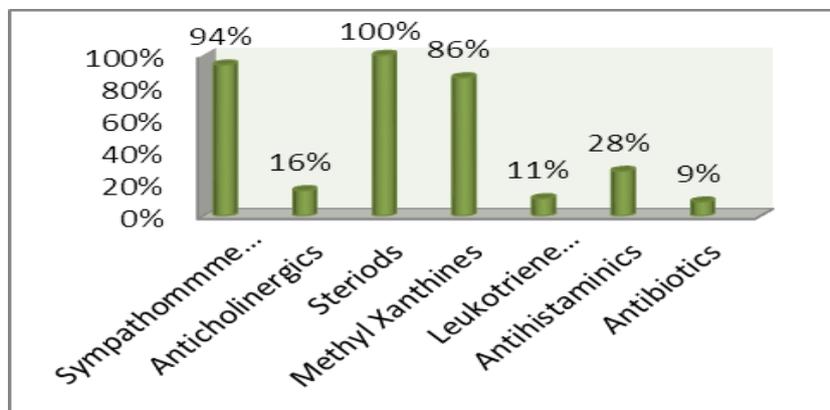


Fig 3: Different Class of drugs prescribed.

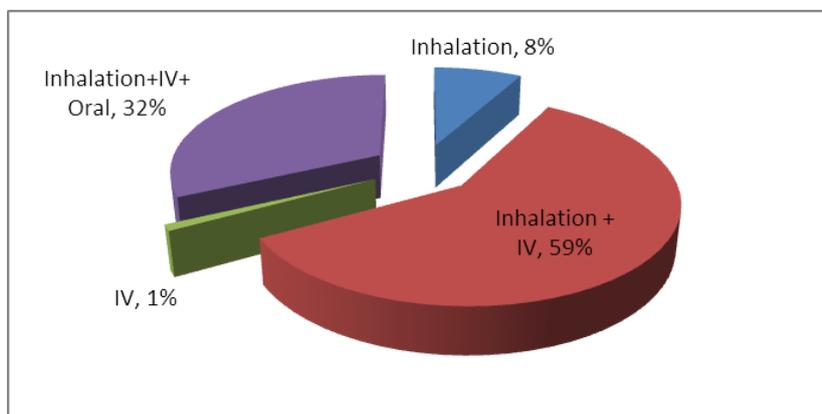


Fig 4: Combination of different routes of drugs administered.

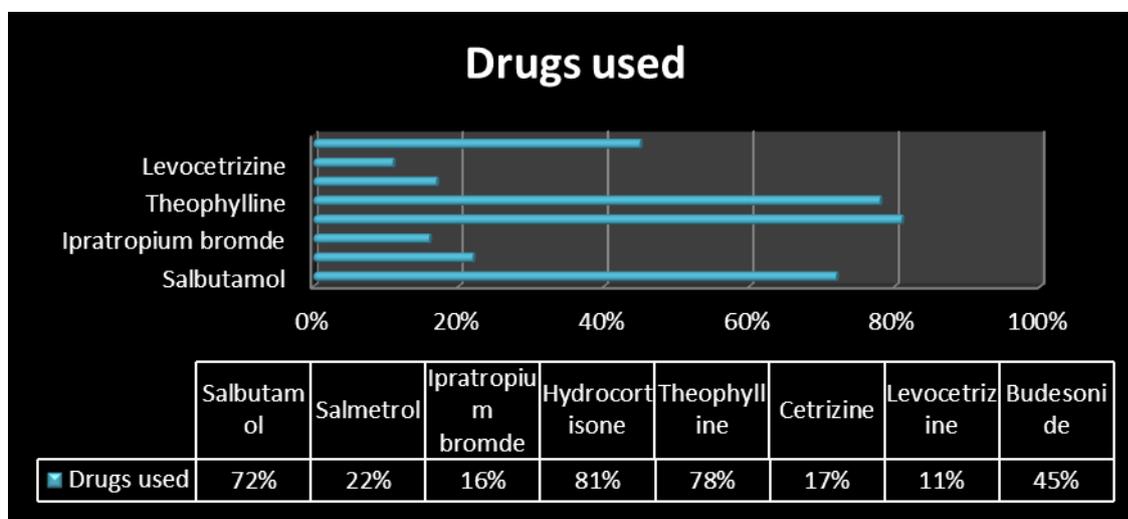


Fig 5: Percentage of use of Antiasthmatic drugs.

DISCUSSION

Drug utilization study is a component of medical audit that does monitoring and evaluation of the drug prescribing patterns and suggests necessary modifications in prescribing practices to achieve rational therapeutic practice.^[6] Analysis of 300 prescriptions in our study showed that Acute bronchial asthma was more prevalent in males(59%) than females(41%). This is in synonymous with the study conducted in Gorakhpur, India by Awanish Pandey et al.^[7]

Incidence of Acute bronchial asthma is more common in elderly age group accounting to 32.6% in age group of 51-60 years, 25.3% between 61-70years and 18.3% above 70 years.

Bronchial Asthma has high levels of morbidity and mortality in most the countries. In our study the most frequently prescribed drugs was Hydrocortisone 81%, followed by Theophylline 78% and Salbutamol in 72% This is in contrast to the medical audit report on drug treatment of acute asthma in emergency department in Canada released in the year 2006; where in all the treated patients received nebulized β 2-agonist, 80% received parenteral steroids, 60% received oxygen and Theophylline in only 5%.^[8]

In our study corticosteroids are administered mainly by intravenous route (81%) which has faster onset of action within hours and hence preferred. This matches with the established literature.^[9]

β 2-agonists are reported to be the medications of first choice for acute asthma and are life saving.^[10] These were used in 94% of the patients in our study. Anticholinergic ipratropium bromide(16%) was administration by nebulization in our study as it has the rapid onset of action. It is usually combined with Sympathomimetics or Steriods.

Theophylline is used in 78% of the patients. Actually Xanthines have narrow margin of safety and hence their use has significantly declined in the treatment of acute bronchial asthma.^[10]

Antihistaminic like cetirizine and levocetirizine was prescribed as an adjuvant drug in 28% patients. They improves asthma symptoms, decreases rescue drug use and does not worsen pulmonary function parameters. They also have some bronchodilatory properties.^[11]

Montelukast, a leukotriene receptor antagonist was prescribed as a fixed dose combination with levocetirizine (11%). These are active over a wide range of asthma severity and have both an anti-inflammatory and a bronchodilator property.^[12]

Our study also showed that amoxicillin (9%) was prescribed which is highly effective against respiratory infections. It favorably affect the bronchial hyper-responsiveness found in asthma and it also helped to improve the breathing & lung function in asthmatic patients with underlying respiratory infection.^[13]

CONCLUSION

This prospective observational study included 300 patients. It revealed the extensive use of Steroids, β 2-agonists and Xanthines as the drug of choice for acute bronchial asthma. Combination of Corticosteroids with β 2-agonists has been used which is rational since their synergistic actions has already been proved. Xanthines could have been avoided due to their adverse effects and instead could have used newer Antiasthmatics which are available.

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