



Original

Prescribing Trends in Asthmatic Patients in Lahore

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ABSTRACT

The purpose of this study was to evaluate the prescribing trends and prevalence of asthma type in asthmatic patients of Lahore from September to November 2013. In the present study 50 Antiasthmatic prescriptions were collected from a tertiary care hospital of Lahore. 28 prescriptions were of males and 22 were of females. Maximum prescriptions were of patients of age groups 21-40 years (42%) & 41-60 years (44%). Amongst the prescriptions that were analyzed, moderate asthma was the most prevailing type (48%), followed by severe asthma (38%), and mild asthma (14%). Combination therapy was observed in 94% of the prescriptions. Inhaler alone was prescribed for most of the patients (82%) and in combination with tablets in 18%. Salbutamol in combination with Beclomethasone was the mostly prescribed anti-asthmatic therapy combination (90%) followed by Salbutamol & Montelukast (4%). It was concluded from this study that the most prescribed combination was according to WHO guidelines for asthma management.

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Introduction

Asthma is a disease of lungs and is characterized by high response of bronchial smooth muscles, which results in constriction of air passages which can be relieved spontaneously or by therapy^{1,2}. Asthma can cause wheezing, dyspnoea, congestion of chest, and cough¹. Characteristics of asthma include uncertain airflow and over response of bronchial smooth muscles. This disease effects people of all ages and is responsible for over 470,000 hospitalization per year in USA^{3,4}. Amongst these, African-Americans and children has the highest rate of hospitalization.

According to the study in 2002 in Pakistan it was estimated that 5% of the total population was suffering from bronchial asthma. Asthma has become an epidemic during last decade whereas 2 million patients are already suffering from asthma which includes high percentage of children which is 20-30% and the number is increasing 5% annually^{2,5}. In India, 57000 deaths were estimated due to asthma in the year of 2004(WHO) and it was observed as the major cause of morbidity and mortality in rural India^{3,5}. Over the past 20 years, the prevalence, morbidity, and mortality of asthma has increased in the United States and worldwide. In response to this alarming trend, in 1991 the National Education and Prevention Program (NAEPP) instituted by the National Heart, Lung, and Blood Institute (NHLBI) published guidelines for the diagnosis and management of asthma^{4,6}. Two additional reports have since been prepared by asthma experts in cooperation with NHLBI. The 1991 expert panel report classified asthma severity as; intermittent (step 1), mild persistent (step 2), moderate persistent (step 3) & severe persistent (step 4).¹⁵

Asthma is diagnosed on the basis of patient medical record and family histories, a physical exam, and test results. The main

diagnostic test that is used for the detection of asthma is spirometry test that check how your lungs are working. Spirometry test evaluates the amount of air that can breathe in and breathe out. Additional diagnostic tests includes methacholine challenge test, chest X-ray, sputum eosinophills and nitric oxide test (rarely use).

Two classes of antiasthmatic drugs are bronchodilators and anti-inflammatory drugs. Bronchodilators inverts the bronchospasm of the immediate phase of asthma while anti-inflammatory drugs inhibits or prevents the inflammatory mediators of both immediate and chronic phases. Among these two categories, some drugs are bronchodilators while some are anti-inflammatory. The main drugs used as bronchodilators are β_2 -adrenoceptor agonists; others include Xanthines, Cysteinyl Leukotriene Receptor Antagonists and Muscarinic Receptor Antagonists.

Objective of the present study were, to check the prevalence of the asthma type, age and gender wise distribution, to review drug use practices in asthma; most prescribed dosage form and combination therapy.

Materials and Methods

Study Design

A retrospective, descriptive and observational study.

Duration

The study was performed for the period of 2 months from 1st September to 1st November 2013

Source of data collection

Prescriptions of 50 asthmatic patients were collected from a tertiary care hospital of Lahore. We evaluated the prescriptions of the patients according to the different parameters and monitored these parameters according to

the WHO¹ prescription monitoring Performa. The Data was collected from

- Prescriptions
- Lab reports

Inclusion criteria

The patients diagnosed with asthma and on anti-asthmatic prescription were included in the study.

Exclusion criteria

The patients with other diseases like Hypertension, Diabetes Mellitus and heart problems were not included in our study.

Parameter of study

The various parameters that were observed and analyzed are as follows

1. Gender

2. Age

The patients were classified into four age groups, Group I: 1—20 years, Group II :21—40 years, Group III: 41—60 years & Group IV: > 60 years.

3. Dosage form

Data was collected to check the dosage form prescribed i.e. Oral, inhalers & combination

4. Drug therapy

Data was collected to check nature of combination, class of prescribed drug .

Results

Prescriptions of 50 asthma patients were evaluated in the current study out of which 28 were of male (56%) and 22 of female (44%). (As given in Graph 1).

Asthma patients were divided into four groups. Majority of the asthma patients were of age groups 21-40 years (44%) & 41-60 years (42%). 14% of the patients were of age greater than 60 years whereas no patient was below 20 years. (As given in Graph 2)

Most of the prescriptions were of moderate asthma (48%) followed by severe asthma (38%) & mild asthma (14%) as shown in Graph 3.

For management of asthma majority of patients were prescribed combination of antiasthmatic medications (94%) whereas only 6% were prescribed monotherapy containing either Methylxanthines/ β -agonist or Corticosteroids. (as shown in Graph 4)

Inhaler alone or in combination with another type of inhalers (Salbutamol and Beclomethasone) was the most prescribed dosage form in asthma patients (82%). Inhaler in combination with oral anti asthmatic medication was prescribed in only 9 patients (18%). No parenteral medication was prescribed in our study sample. (as shown in Graph 5)

Salbutamol in combination with Beclomethasone was the mostly prescribed combination therapy observed (90%), Salbutamol with Montelukast was prescribed in only 2 patients (4%). Monotherapy was being given to 3 patients (6%), amongst those 2 were prescribed with Salbutamol and one patient (2%) was prescribed Theophylline. (As given in Graph 6)

Discussion

In our study asthma was found comparatively more prevalent in male (56%) as compared the female (44%) as shown in Graph 1. In s similar study conducted in India in 2012 asthma was also observed in majority in male gender (62%)⁸. In our study majority of the asthma patients were in age ranging from 21 to 60 years (Graph 2). Generally, parents prefer the private clinic rather than the OPD of the Public sector hospitals for check up of their children, that could be one of the reason that in our study we did not observe any patient of age less than 20 years. In a study published by New York City Department of Public Health and Mental Hygiene in May 2003 in which out of a total of 26,868 hospitalized patient of asthma 37% hospitalizations were of age less than 14yrs and 38% were of age greater than 45 years⁹. According to a study published in BioMed

Central, the hospitalization rate of asthma depends upon gender, geographic region, age, and use of asthma medication¹⁰. A study published in Europe PubMed Central in 2012 indicated that asthma is the most responsible diagnosis in all hospital discharges¹¹. It was observed in the present study that majority of the patients were suffering with moderate asthma (48%) followed by severe (38%) and Mild type (14%) as shown in Graph 3. Patients with moderate to severe asthma have to take long term medication daily to control the underlying inflammation and prevent symptoms and attacks. In our study 6% of the asthmatic patients were being treated with single anti asthmatic medicine that was either Salbutamol or Theophylline, whereas 94% of the total patients were being treated with combination of anti asthmatic drugs as shown in Graph 4. There was two anti-asthmatic medicine combination being prescribed in the said study patients, out of which Salbutamol with Beclomethasone was the most frequently prescribed combination (90%) where as Salbutamol with Montelukast was prescribed in only 4% of the total patients as shown in Graph 4.

As far as dosage form of anti-asthmatic medicines is concerned it was observed in our study that Inhaler was the mostly prescribed dosage form alone in only 4% (Salbutamol), whereas 18% in combination with oral dosage form (Salbutamol with Montelukast) and 82% was prescribed combination of inhalers (Salbutamol with Beclomethasone) and only 2% was prescribed with oral dosage form alone (theophylline) as shown in Graph 5. It has been prove that Xanthines improve daily symptoms but do not improve the risk of an asthma attack¹². In a similar prescription based study conducted in Dherandun hospital on 100 patients to assess and evaluate the rationality of the prescription 30.9% patients were using inhaler, the reason was either prescriber do not believes in prescribing it or

finance issue from hospital administration⁷ but fortunately the condition was much better in our study as the inhalation route causes a high local concentration in the lungs with low systemic delivery, significantly improves the therapeutic effectiveness and minimizes systemic side effects. Reduced prescribing trends of Antibiotics, Expectorant, Antitussive and Antihistamines in asthma indicates the awareness among the physicians towards the standard treatment guidelines. The most frequently prescribed combination observed in our study was of LABA(long acting b-2 agonist) and ICS (inhaled corticosteroids) which is in accordance with GINA Guidelines (Global Initiative for Asthma)¹³. The introduction of LABA(long acting b-2 agonist) in the bronchodilator therapy was considered to be an major advancement because their use led to improved the quality of life and improved the lung function¹⁴

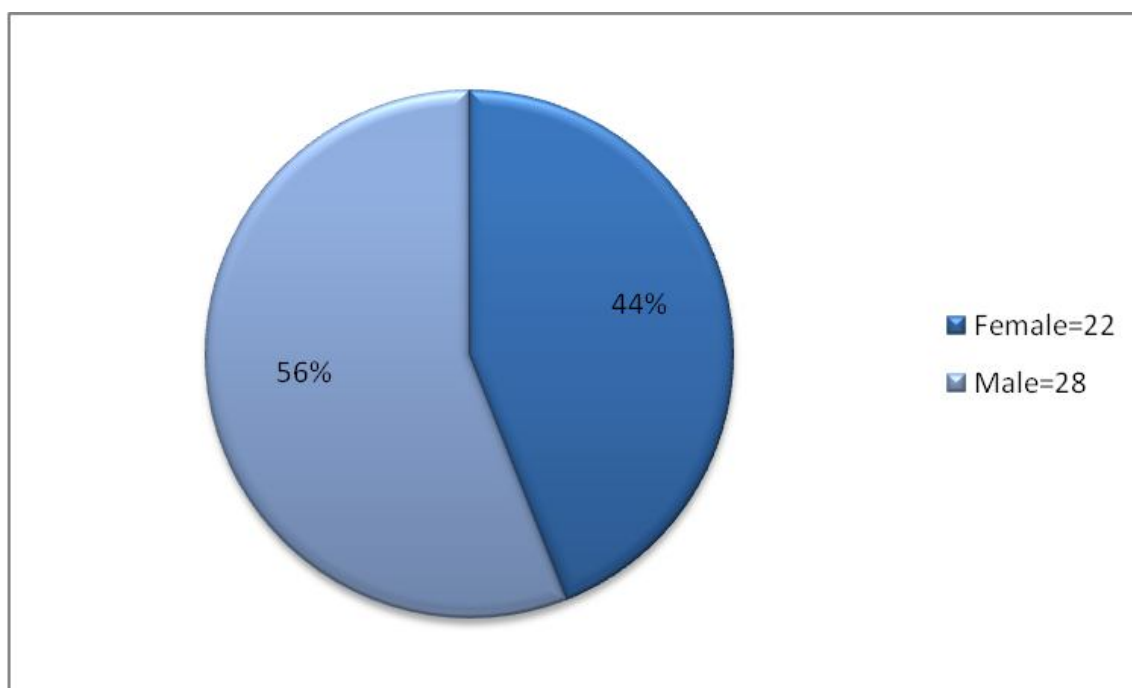
Thus our study highlights the prescribing trends in asthma in a tertiary care hospital of Lahore are of optimum level and in accordance with the International Guidelines for Asthma management like GINA. Still there is a regarding improvement in Rationality in prescribing at secondary and primary health care setting and patient knowledge in asthma management. Pharmacist is required to put certain steps in order to improve the awareness among the patients as he is a person in close contact with patients.

Conclusion

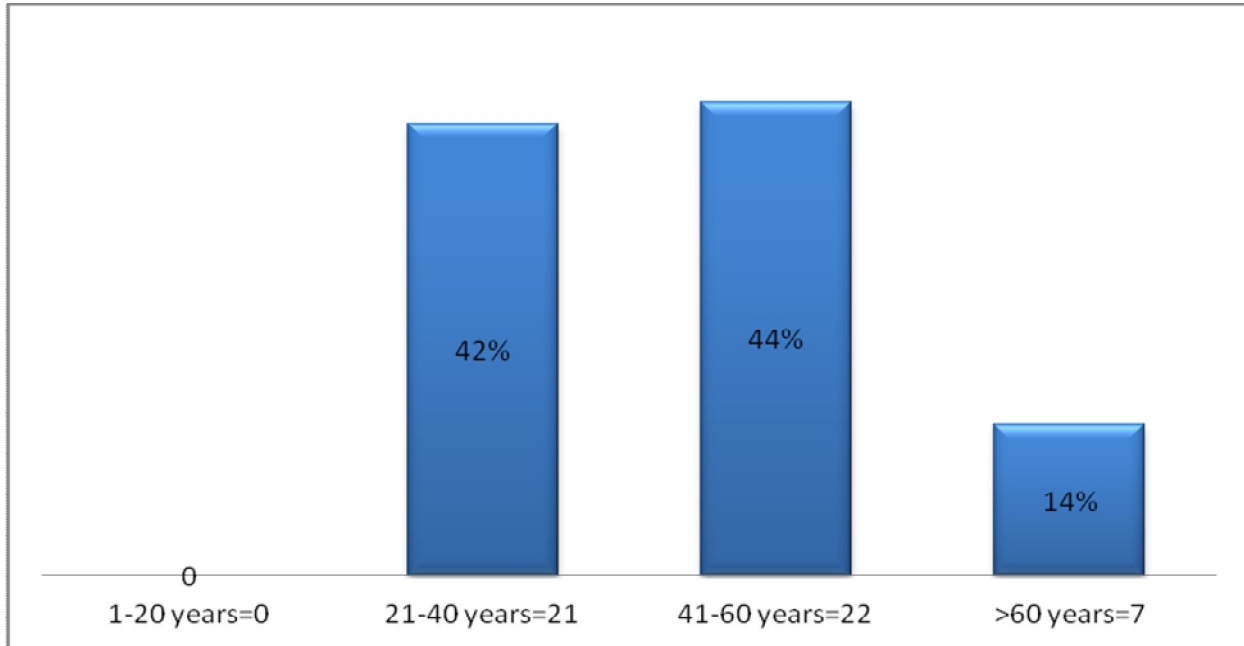
In In our study incidence of asthma was more reported in male (56%) more than female (44%). More cases were reported in patients of age ranging from 21 – 60 years. Most of the patients were prescribed with combination therapy (94%), Inhaler was the mostly prescribed dosage form (82%) and Salbutamol plus Beclomethasone was the mostly used combination.

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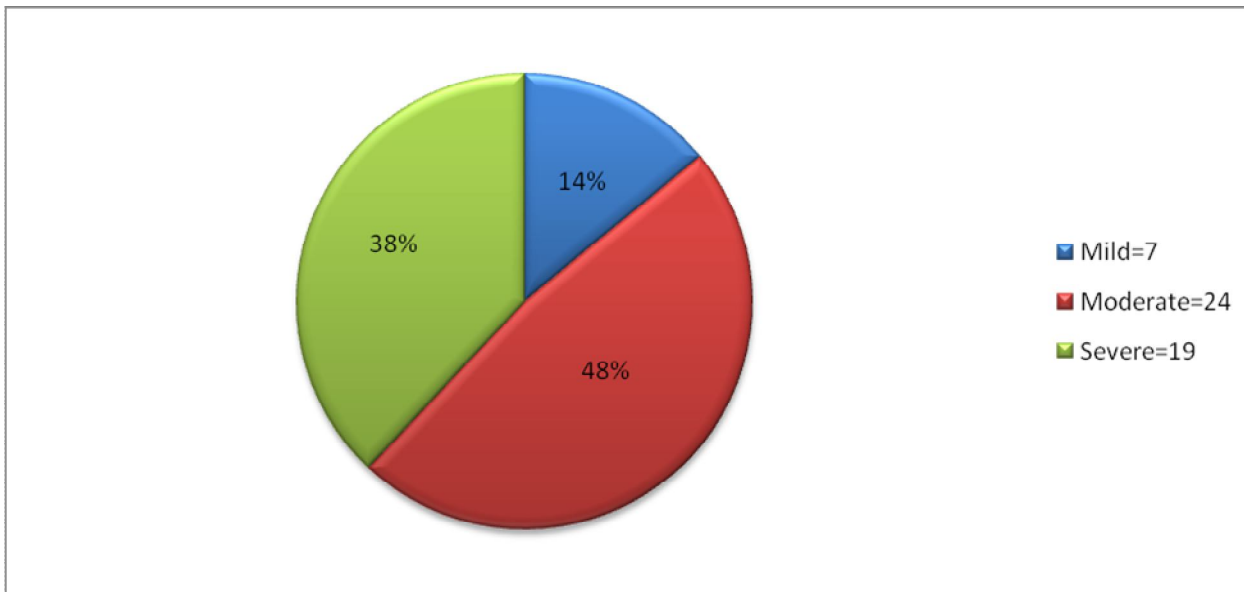
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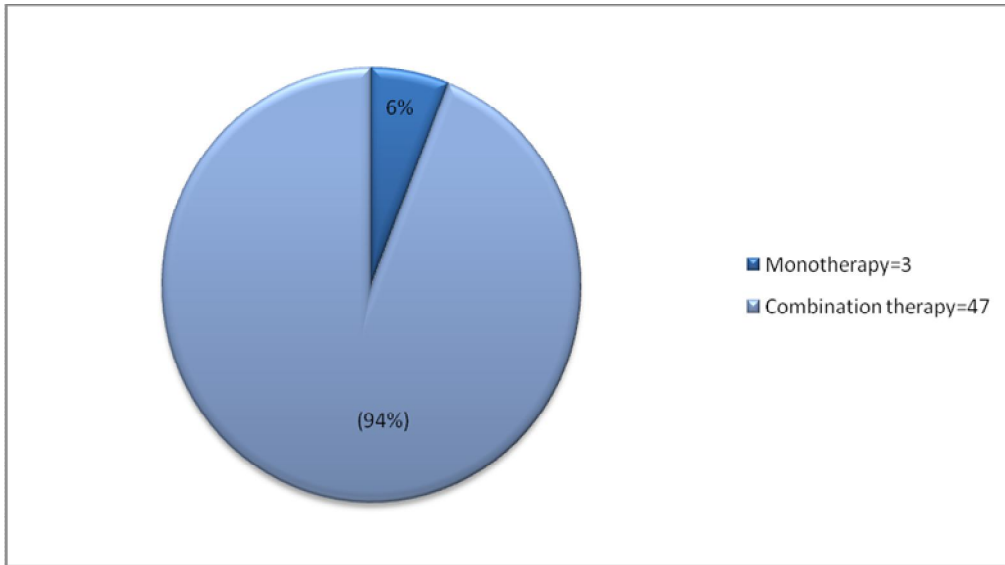
Graph.1. Gender wise distribution of asthma patients (n=50)



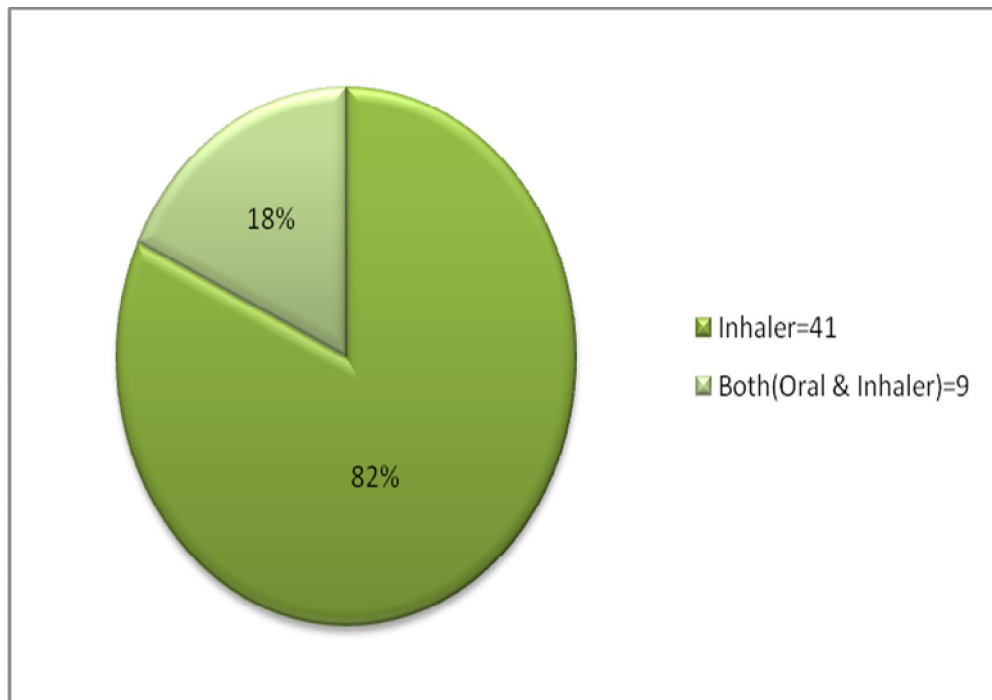
Graph.2. Distribution of asthma patients on the basis of different age groups (n=50)



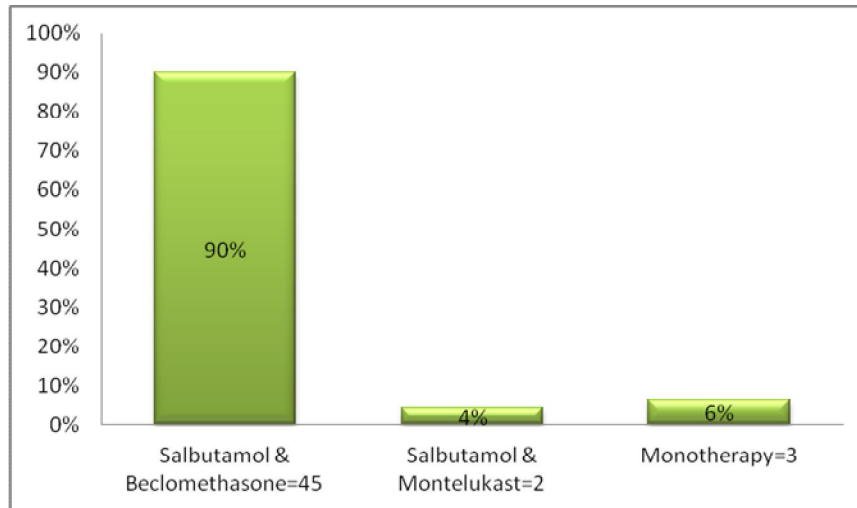
Graph.3. Percentage distribution of patients on the basis of severity of asthma



Graph. 4. Percentage distribution of drug therapy combinations (n=50)



Graph. 5. Percentage distribution of anti Asthmatic dosage forms (n=50)



Graph. 6. Percentage distribution of anti-Asthma Combination therapy (n=50)