

# Evaluation of Recent Medication Therapies of Asthma in Different Hospitals of Lahore City, Pakistan

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## Abstract

Asthma is the episodic and most chronic disease that exists worldwide. Factors that trigger asthma are allergens, pollens, cigarette smoke, dust, mites, and animal dander, cockroaches and food. A increased knowledge of asthma, its causes and prevention influence the researchers to find out new and improved medication therapies for future to serve asthma patients is a great opportunity for ambulatory care pharmacists. A questionnaire based, cross-sectional study was planned for this research. Questionnaires were standardized based on common research or they can be customized to meet the specific data gathering need. The study was conducted at five different hospitals of Lahore, Children hospital Lahore, Jinnah hospital Lahore, General hospital Lahore, Social security hospital Lahore and Chaudhary Muhammad Akram teaching and research hospital Lahore. The results indicated that 85% of population is suffering from asthma. 91.5% of population is any taking medication for asthma. Most recently used medication for asthma are inhalers i.e. 80% and inhaled corticosteroids i.e. 82%. Patients are taking medication therapies for asthma but most commonly used are inhalers and steroids. Education provided by pharmacist about asthma was an integral part of health maintenance services its management to control or prevent further attacks because of his knowledge in pathophysiology pharmacology and medication techniques of asthma. Pharmacist driven medication therapy management services were economically stabilized.

**Keywords:** Asthma; Cross sectional study; Corticosteroids; Lahore; Questionnaires

## Introduction

Inflammation plays a vital role in the pathophysiology of asthma. Airway inflammation including an interaction of many cell types and multiple mediators with the airways that results in the characteristic pathophysiological features of asthma: bronchial inflammation and airflow restriction that result in repeated episodes of cough, wheeze, and shortness of breath [1]. The pattern of airway inflammation in asthma does not essentially vary depending upon disease severity, persistence, and duration of disease [2]. Many inflammatory cells contribute in the inflammatory process in asthma and complex mixture of mediators is formed. Cytokines act as main role as mediators of chronic inflammation [3]. The inflammatory process in asthma results not only in bronchoconstriction, but also plasma exudation, the activation of, mucus secretion. The risk factors for each recognized phenotype of asthma include genetic, environmental and host factors. The risks factors for insistent asthma at different ages, precisely the antenatal period, infancy, childhood and adulthood [4].

Asthma affects around 235 million people worldwide. Approximately 255,000 people die annually due to asthma. The morbidity rate will be increased to 20 % in next five years. Asthma occurs in almost all countries, over 80 per cent of deaths due to asthma occur in low and middle-income countries [5,6]. The time trends in asthma symptom prevalence showed different regional patterns. From 2012-2017 asthma has widespread in Pakistan where nearly two million patients have been suffered from the disease of which 20 to 30 percent are children. The pollution levels in almost all major cities of Pakistan are about 10 times higher than standards of the World Health Organization (WHO). The percentage of asthmatic patient has increased of five per cent annually [7].

Asthma proportions have been increasing steadily in recent decades. The percentage of asthma is more common in women and 60% are more likely arrive in hospital. During the 2-year study period,

1.6% of the men and 2.9% of the women has developed asthma. BMI is a significant interpreter for asthma incidence in women. The adjusted chances ratio for women whose baseline BMI was at least 30.0 kg/m<sup>2</sup> versus 20.0-24.9 kg/m<sup>2</sup> was 1.9 (95% confidence interval: 1.1, 3.4), whereas the parallel odds ratio of 1.1 (95% confidence interval: 0.3, 3.6) for men is not significantly different from accord. Children of mothers, who smoked 10 or more cigarettes per day are 2.5 times more likely (95% confidence interval 1.42 to 4.59) to develop asthma and has 15.7% lower most average expiratory flow than children of mothers with the same education level who did not smoke or smoked fewer than 10 cigarettes per day [8].

In third world countries like Pakistan many diseases are very common and are needed to be addressed for the betterment of people [9]. Asthmatic patients have to be ready for every sort of situation because sudden attacks of asthma emanates any time. The use of anticholinergic drugs in patients with asthma has played an important role in asthmatic patient therapy [10].

## Methodology

A questionnaire based, cross-sectional study was planned for this research. Questionnaires were standardized based on common research or they can be customized to meet the specific data gathering need. The study was conducted at five different hospitals of Lahore, Children hospital Lahore, Jinnah hospital Lahore, General hospital

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Lahore, Social security hospital Lahore and Chaudhary Muhammad Akram teaching and research hospital Lahore. The study was conducted from November 2017 to February 2018. The study has been completed in three stages 1. Develop the questionnaire, 2. Fill the questionnaire, 3. Conduct of interviews. Questionnaire has been developed to achieve following aims: 1. To access the attitude of people, 2. To deliver the knowledge about asthma, 3. To enhance skills of people, 4. To provide the awareness, 5. To check behaviors and practices of people.

The different approaches that have been used to fill the questionnaire are to conduct face to face interview, mailing the survey sheet to different age groups of people and telephonic interview of different people in hospitals. We used different scales which gave information needed to respondents. These scales included, 1. Yes-No, 2. True-False, 3. Multiple Choice, 4. Agree-Disagree. In some cases a series of related questions can actually make it easier for respondents to answer complex questions correctly. It is mandatory for the respondent to understand the question, be able to respond, be willing to do so. Questionnaire in our study has three basic objectives: 1. it is used to collect data and information needed to answer the research questions, 2. data should be relevant and valid, 3. the questionnaire should be convenient for respondents and to collect data.

The questionnaire sheet comprised of following survey questions:

- When did you have your first symptoms/episode of asthma?
- When were your most recent symptoms/episodes of asthma?
- Have you suffered from ongoing symptoms of wheezing or shortness of breath between attacks?
- In the past two years, have you had time off work as a result of asthma?
- Have you ever been treated with steroids? (E.g. cortisone or prednisone.)
- Have you ever been hospitalized or required emergency medical treatment for asthma?
- Have you had a chest X-ray or lung function test?
- Have you been hospitalized for asthma, pneumonia, bronchitis or other breathing problems?
- How many weeks are you getting your medicine?

## Results

### Demographic characteristics of the study respondents

846 patients responded to the survey. The cohort was dominated by males 538 (63.6%) whereby majority of the patients (336, 39.7%) were in the age group of 28-37 years. Almost 60% of the respondents were married and belonged to urban residencies. 85% of total respondent (719) people have suffered from asthma and 91.7% (776) people were taking one or the other medication for asthma. These people have 30-35 episodes of asthmatic attacks in a year.

## Discussion

Asthma is a chronic disease which places encumbrance on patient. In third world countries like Pakistan many diseases are common and are needed to be addressed for the betterment of people [11]. Persistent air flow hindrance, recurrent appearance of disease either fatal or near fatal are the main factors due to which asthma is difficult to treat and for that purpose high medication is required to control disease which

often intricate the situation. Among recent medication therapies which are most commonly used are inhalers i.e. HFA inhaler or albuterol, corticosteroid inhalers, monoclonal antibodies i.e. omalizumab, nitric oxide, bronchodilators i.e. ipratropium, LABA (long acting beta agonist), SABA (short acting beta agonist) medications [12,13]. According to GOAL (gaining optimal asthma control) the main aim is to control asthma either by using combinations and single drug therapies. The individuals in whom asthmatic symptoms are uncontrolled, combination therapy of different drugs is recommended for three months until the symptoms have relieved [14]. The basic advantage of this combination therapy is to use corticosteroids at lower doses with combination of inhalers in less quantity.

The result indicated that 95% of population has suffered from asthma. 91% of population is taking one or the other medication for asthma. Most recently used medication for asthma are inhalers i.e. 80% and Corticosteroids i.e. 82%. LABA users are 33% and SABA users are 55%. In the same way leukotriene modifier users are 40% and theophylline users are 44%. Most commonly bronchodilators are also used for asthmatic treatment i.e. 50%. The results revealed that majority of our population have suffered from asthma attacks. Patients are taking medication therapies for asthma but most commonly used are inhalers and steroids.

Different classes of medication are prescribed to alleviate the symptoms of asthma in hospitals depending upon the severity of condition. We have observed following cases of asthma with medication therapies in different hospitals.

In case of Mild intermittent Asthma SABA (short acting beta agonist) is given. In case of Mild Persistent Asthma, inhaled corticosteroids are prescribed. In case of Moderate Persistent Asthma, low dose of inhaled LABA (long acting beta agonist) plus low doses of corticosteroids, leukotriene antagonist plus low dose of corticosteroids, theophylline plus low dose of inhaled corticosteroids. In case of Severe Persistent Asthma, high dose of inhaled corticosteroids plus LABA, leukotriene antagonist or oral beta agonist, oral corticosteroids used if conditions are not overcome by inhaled corticosteroids. According to the START (steroid treatment as regular therapy) 7000 individuals with mild but persistent asthma including both children and adults get treated with ICS (inhaled corticosteroids) [15]. Medications used for treating asthma are rapidly improving and also the health quality by recent advance medication that not only reduces the burden on health care facilities but also declines the exacerbated conditions of asthma. Apart from pharmacological treatment non pharmacological interventions are also used to treat asthma. These non-pharmacological interventions may include:

- Avoid smoking
- Regular exercise
- Sleeping positions must be considered.
- During serious asthmatic attacks sleeping techniques can help in breathing whole lifting the bed from head side.
- Environmental conditions that exaggerate the asthma such as pollens animal dander, dust, mites, cow's milk and food. Avoid all these to reduce allergic attacks.
- Stress situation also avoided to reduce exacerbations.
- Breathing techniques include pursed lip breathing is to be adopted to breathe easily during asthma.

- Patients that are allergic to dust, mites must use mites prove mattress and bed covers with regular washing at a temp above 55°C (130°F).
- Carpets must be removed from homes to avoid allergy.
- If allergic, pets must be avoided.
- Obese individuals having BMI (body mass index) Above 30 there are more chances to have asthma proper dieting and weight loses exercises must be done.
- GERD (gastro oesophageal reflux disease) patients have exaggerated asthma conditions; they must avoid food and meals before three hours of sleeping. Take meal in minimum quantity episodically.

### Limitation

Our study is limited to the population of Lahore city and results can't be generalized.

### Conclusion

The study reveals that as a Pharmacist it is very imperative for us that we discern & aware which medication therapy is given to the patient in Asthmatic Attacks. Pharmacist plays an important role to educate the patients hoe to use the inhalers and which medication is suitable for them either in acute or severe asthmatic attacks. Health professionals capable enough or proficient to transaction with the Asthmatic patients easily and know how to treat the emergency situation.

Health professionals play vital role in reducing the no of asthmatic patients by education, proper counselling and awareness about the proper use of medication that how they can use inhalers properly. With the modern technology, recent medication therapies have great impact in alleviating the symptoms of asthma.

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### Conflict of Interest

The authors declare that they have no conflict of interest.

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