

## Original Research

### Evaluation of Medication Adherence and associated Factors in patients with Bronchial Asthma

Arshad Hasan<sup>1</sup>, Adil Ali Shakur<sup>2</sup>

<sup>1</sup>Associate professor, Department of Pharmacology, Rama Medical College Hospital & Research Centre, Hapur, Uttar Pradesh, India,

<sup>2</sup>Senior Resident, Department of Pharmacology, Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India

#### **ABSTRACT:**

**Introduction:** Asthma is a chronic inflammatory airway disease and is a major cause of disability and health resource utilisation, and reduces quality of life. Uncontrolled asthma is often associated with poor medication adherence or suboptimal therapy resulting in an increased risk of exacerbations and higher associated medical costs. **Aim:** Therefore the present study was conducted with an aim to evaluate various factors, reasons and pattern of nonadherence to therapy in bronchial asthma. **Material and methods:** It was a questionnaire-based, study which included adult patients above 18 years of age with the diagnosis of bronchial asthma for more than 1 year and patients receiving antiasthmatic therapy for over six months. All patients were interviewed using a standard interview schedule. Patient was said to be compliant if he/she had taken more than 80% of the prescribed medicines during the study period. All the prescription drugs that the patients were taking were noted and also if they had suffered from any adverse effects. **Results:** Total of 100 patients were studied with majority of the patients 42% in the age group of 21 to 40 years and male: female ratio was 1.9:1. The most commonly used antiasthmatic as prescribed was a leukotriene antagonist (montelukast). We observed 61 (60%) patients to be regular to the drug therapy and did not miss a single dose while the remaining 39% were found to be non-adherent. It was observed that the most common factor for non adherence was patients fear about side effects of the medications (21%), followed by feeling of well-being on therapy (19%), multiple drugs and increased frequencies of daily intake (16%) then the high cost of the therapy (15%). Self-medication was found in 18% of patients. **Conclusion:** Nonadherence to therapy is a common problem in the management of patients with severe asthma. Patients education should also be given importance so as to reduce various related factors of non adherence. To further elucidate the association between adherence and risk of asthma exacerbations, more well designed studies with robust and objective methods for assessment are required.

**Key words:** Adherence, non adherence, bronchial asthma, risk factors.

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**Corresponding author:** Dr. Adil Ali Shakur, Senior Resident, Department of Pharmacology, Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India

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#### **INTRODUCTION:**

Asthma is a chronic inflammatory airway disease and is a major cause of disability and health resource utilisation, and reduces quality of life.<sup>1,2</sup> The global prevalence of bronchial asthma according to the WHO is 235 million. Estimates indicate that, India has 20 to 28 million asthmatics and the prevalence amongst children (5 to 11 years) is in between 10% to 15%.<sup>3-5</sup> Severe and difficult-to-treat asthma are terms used interchangeably to describe a subset of patients with asthma who require high-dose preventer therapy to

control their asthma or remain uncontrolled. Guidelines developed by the Global Initiative for Asthma (GINA) and the US National Heart, Lung and Blood Institute (NHLBI) recommend inhaled corticosteroids (ICS) for long-term treatment of patients with persistent asthma.<sup>6</sup> Treatment guidelines highlight the importance of adherence to medication in achieving asthma control. Adherence to therapy is now becoming one of the main issues in its effective management all over the world.<sup>5</sup>

Uncontrolled asthma is often associated with poor medication adherence or suboptimal therapy resulting in an increased risk of exacerbations and higher associated medical costs. Problem is much more in developing countries where it is estimated that only 50% of patients in developing countries with chronic diseases such as asthma, diabetes, and hypertension follow treatment instructions. A key reason for poor compliance is that patients with a chronic disease do not have a satisfactory understanding of their condition and the need for medication. The economic burden of bronchial asthma to the society is well documented in industrialized countries<sup>7</sup>. Adherence to medication can be influenced by aspects of the treatment regimen, such as the number of individually administered agents, dosing frequency, and ease of administration. Identifying risk factors for nonadherence is the key to addressing this issue. Therefore the present study was conducted with an aim to evaluate various factors, reasons and pattern of nonadherence to therapy in bronchial asthma.

#### MATERIAL AND METHODS:

This cross-sectional study was undertaken in the Department of Pharmacology, Rama Medical College Hospital, Hapur over a period of 1 year. The study was started after taking clearance from the institutional ethical committee.

#### STUDY SAMPLE:

It was a questionnaire-based, study which included adult patients above 18 years of age with the diagnosis of bronchial asthma for more than 1 year and patients receiving antiasthmatic therapy for over six months. Those with acute severe asthma, chronic obstructive

pulmonary disease (COPD), cardiac asthma were excluded.

An informed consent was obtained from each patient. All patients were interviewed using a standard interview schedule. Apart from a detailed history, physical examination, pulmonary function test including peak expiratory flow rate PEFr were measured during the first visit. Adherence to therapy was determined by the extent to which patients followed treatment instructions and not following it was considered nonadherence. Medical records were also evaluated.

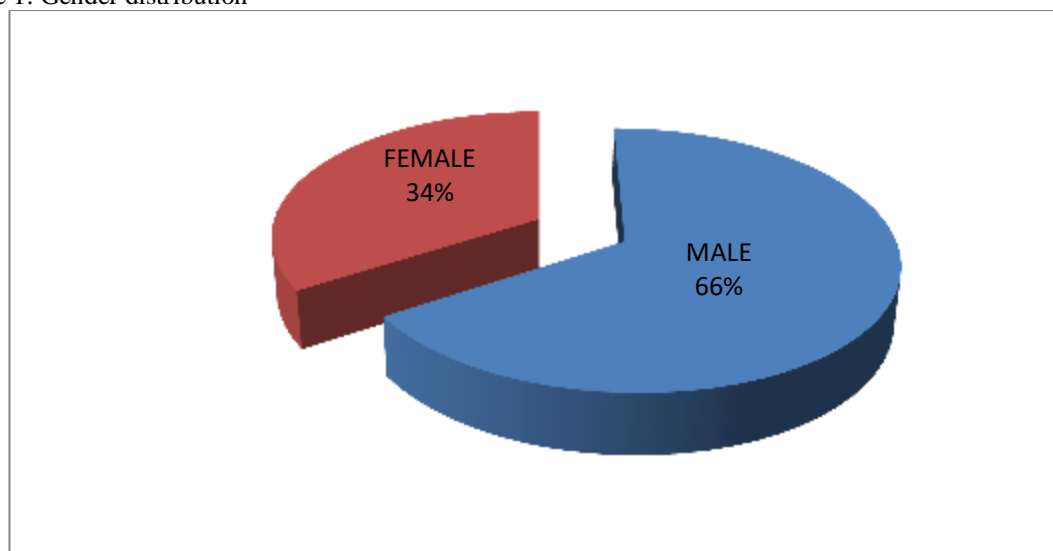
All patients were followed up on monthly basis for four months. At the end of four months, compliance to treatment was arrived at after studying the patient diary noting, pulmonary function tests and peak expiratory flow rate measurements. Patient was said to be compliant if he/she had taken more than 80% of the prescribed medicines during the study period.

Information related to adherence was documented, and reasons for not adhering to therapy were also noted. All the prescription drugs that the patients were taking were noted and also if they had suffered from any adverse effects.

#### RESULTS:

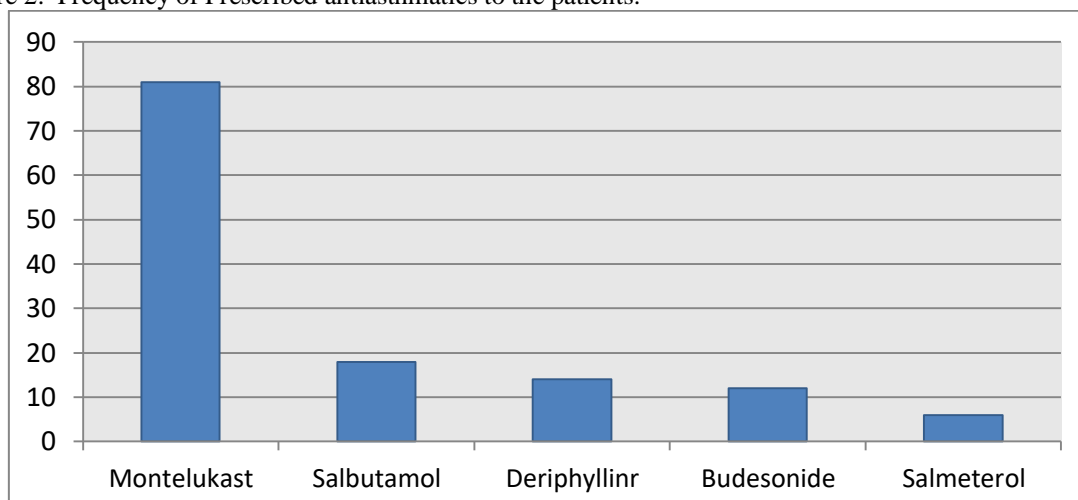
A total of 100 patients were studied during the period. Majority of the patients 42% (n=42) were in the age group of 21 to 40 years with a mean age of 38.4 years. Gender distribution showed that 34 were females and 66 were males and the male: female ratio was 1.9:1 (Figure 1). Majority of patients 61 (61%) had either primary or secondary education while 8% were illiterate. Majority of the patients belonged to middle socio-economic status.

Figure 1: Gender distribution



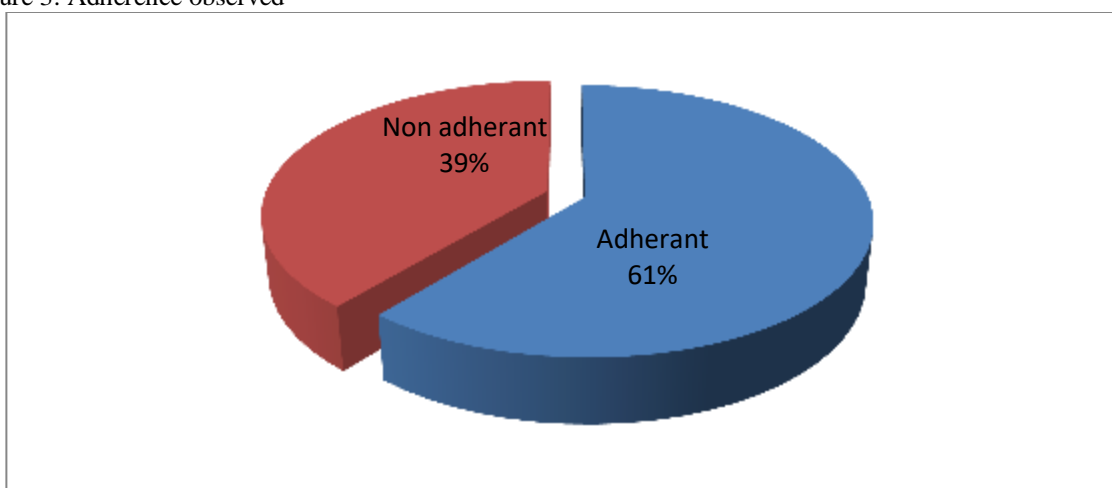
The most commonly used antiasthmatic as prescribed was a leukotriene antagonist (montelukast), which was prescribed to 81% of the patients. No significant adverse effects were reported apart from gastritis in 6% cases. While other less prescribed drugs were Beta-2 agonists, methylxanthines, and steroids.(Figure 2)

Figure 2: Frequency of Prescribed antiasthmatics to the patients.



61 (60%) patients were observed to be regular to the drug therapy and did not miss a single dose while the remaining 39% were found to be non-adherent (Figure 3). Out of those patients who were compliant, 29 were males while 10 were females.

Figure 3: Adherence observed



Association of both education status and Socio-economic status was significant and a significant correlation of both these factors was observed with that to compliance to the therapy in our study.

We categorised the key reasons for decreased compliance and it was observed that the most common factor was patients fear about side effects of the medications (21%), followed by feeling of well-being on therapy (19%), multiple drugs and increased frequencies of daily intake (16%) then the high cost of the therapy (15%), Difficulty in understanding the correct method of using the inhaler (10%), depressed about their condition (8%), dislike of medications (6%) and least was the forgetfulness or negligence on the part of the patients (5%). Self-medication was found in 18% of patients. (Table1)

Table 1: Reasons of decreased compliance in our study.

S.NO	REASONS OF DECREASED COMPLIANCE	FREQUENCY
1	Fear about side effects of the medications	21%
2	Feeling of well-being on therapy	19%
3	Multiple drugs and increased frequencies of daily intake	16%
4	High cost of the therapy	15%
5	Difficulty in understanding the correct method of using the inhaler	10%
6	Depressed about their condition	8%
7	Dislike of medications	6%
8	Forgetfulness or negligence	5%

## DISCUSSION:

The results of this study indicate an adherence rate of 61% in the study sample. Asthma is a chronic inflammatory airway disease with a high prevalence. Adherence to treatment is essential to optimise the benefits of therapy. Uncontrolled asthma is often associated with poor medication adherence or suboptimal therapy resulting in an increased risk of exacerbations.

Non-adherence depends on many factors. Beliefs, perceptions, and experience constitute some of the variables associated with compliance. Adherence to medication can be influenced by aspects of the treatment regimen, such as the number of individually administered agents, dosing frequency, and ease of administration.

In our study patients fear about side effects of the medications was the most common factor for non adherence to therapy, followed by feeling of well-being on therapy, multiple drugs and increased frequencies of daily intake and high cost of the therapy. Previous studies have shown significant improvements in adherence to treatment with once-daily compared with twice-daily controller medications.<sup>8-11</sup> Lindberg et al studied various factors affecting the compliance in asthma patients and they have identified five important factors regarding self-reported compliance with prescribed medications in patients with asthma: age, gender, length of time with airway problems, whether the staff listen and take into account the patient's views concerning his/her asthma, and whether the patient has received information and education concerning asthma.<sup>12</sup>

Gajanan S. Gaude reported 31% were regular compliant while 69% were non-compliant to aerosol therapy. Factors that were associated with poor compliance were: lower educational level status, poor socio-economic status, cumbersome regimens, dislike of medication and distant pharmacies. Non-drug factors that reduced the compliance were: fears about side effects, anger about condition or its treatment, forgetfulness or complacency and patient's ill attitudes toward health. Methods to improve compliance must be validated with objective data and outcome measurements before these can be recommended.<sup>5</sup> Sinha S et al reported that 91% patients were adherent to therapy in their study. The main reasons for not adhering to therapy as suggested by the questionnaire and interview were old age and difficulty in using the inhaled medications appropriately. Self-medication was in 16% of the patients and the most common drugs being proton-pump inhibitors, H<sub>2</sub> blockers, and antihistaminics, but no significant interaction was observed.<sup>13</sup>

## CONCLUSION:

Nonadherence to therapy is a common problem in the management of patients with severe asthma. Patients education should also be given importance so as to

reduce various related factors of non adherence .To further elucidate the association between adherence and risk of asthma exacerbations, more well designed studies with robust and objective methods for assessment are required.

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