# A PROSPECTIVE CLINICAL STUDY ON DISEASE KNOWLEDGE AND MEDICATION ADHERENCE PATTERN AMONG ASTHMATIC PATIENTS IN TERTIARY CARE HOSPITAL IN A TIRUPUR POPULATION

## MUTHUKUMAR A*, SUNDARA GANAPATHY R

**Department of Pharmacology, Faculty of Pharmacy, Karpagam University, Karpagam Academy of Higher Education, Coimbatore, Tamil Nadu, India. Email: mkpharmacologist@gmail.com**

## ABSTRACT

**Objectives:** To study the disease knowledge and drug adherence among asthmatic patients in tertiary care hospital in a rural population.

**Methods:** A total of 99 patients with bronchial asthma study conducted in tertiary care hospital in rural population face to face interaction with patients follow-up have done for 4 months. This clinical study was administered with standard questionnaires evaluating the patient knowledge and medication adherence (MA) Morisky8-items MA scale toward asthma and treatment.

**Results:** A total of 99 patients were evaluated for this clinical study. 43.5% of the patients were male and 56.4% were female. The percentage of the mean score of knowledge and MA are 17% and 18%, with their standard deviation of 1.51 and 1.64, respectively.

**Conclusion:** This study demonstrated that the patient's specific knowledge regarding asthma was low. However, few patient's had favorable attitude toward their disease, but other did not have the necessary knowledge of disease management. In addition, the drug adherence was also poor in occupation induced asthmatics patients.

**Keywords:** Disease knowledge, Garments workers, Asthmagens.

## INTRODUCTION

Bronchial asthma (BA) is a chronic multifactorial spasmogens causing obstruction of airway hyper responsiveness and narrowing of bronchioles leading to wheezing, chest pain, and difficult to breathing and chronic inflammation of lung mast cells [1]. In United Kingdom (U.K) 10% of adults and 20% of children will affects bronchial challenge in allergenic reactions [2]. Asthma is more common in male than female [3]. National asthma education and prevention program and National asthma campaign asthma audit were estimated that more than 5.1 million people were affected BA in U.K, around 75,000 people are admitted in the hospital per year and mortality occurs 1400 in annum [4-7]. Asthma is classified into two types extrinsic and intrinsic. Extrinsic asthma is mostly responsible for family history, specific allergens and strongly raised immunoglobulin E (IGE) [7]. Basically increasing the presence of IGE antibodies in circulating blood will initiate the antigen antibody reaction in lung mast cells to produce degranulation of different chemical mediators such as histamine, serotonin, cysteinyl leukotrienes, cytokines, adenosine, and neuropeptides [8,9]. Medication adherence (MA) is one of the most important factors that determine therapeutic outcomes, especially in patients suffering from chronic illness whatever the efficacy of a drug; it cannot act unless the patient takes it. Low MA has assumed importance as it seriously undermines the benefit of current medical care and imposes a significant functional burden on individual patients and the health-care system a whole [10-12]. In a recent document, the World Health Organization (WHO) recognized the lack of adherence as a major problem in the management of chronic disease and concluded that improving adherence would have a more beneficial impact on health outcome than improving specific treatments. It is an acceptable fact of modern medicines that despite tremendous advances in diagnostic accuracy if the patient fails to take recommended treatment the expenses and efforts involved are virtually wasted [12-15].

## METHODS

### Study type
A prospective and randomized a prospective clinical study on disease knowledge and drug adherence pattern in asthmatic patients in tertiary care hospital.

### Study location
This clinical study was conducted OPD at various tertiary care hospitals in Tirupur zone.

### Duration of clinical study
This study was conducted minimum 6 months of duration.

### Study sources
- Informed consent form.
- Asthmatic patient data collection form and Standard questioners form (As per Asthma Guidelines of Global Initiative for Asthma (GINA) associated with Quality Metric (Lincoln, RI) and Morisky MA Scale (MMAS), and MA Report Scale).

### Inclusion criteria
- People who work in garment industry.
- Age criteria considered for sample is 18+.
- Both male and female are considered for sample.
- Patients who are suffered from asthma and already on treatment.

### Exclusion criteria
- Pregnant/lactating women.
- Subjects with respiratory disease such as tuberculosis and pneumonia.
- Subjects with cardiac and cardiovascular disease.

### Asthma knowledge assessment

Asthma is a chronic inflammatory airway disease which affects 300 million individuals throughout the world. Guidelines for the management of asthma issued by the GINA have focused primarily on optimum disease control. The absence or minimization of chronic symptoms and exacerbations; minimal or no requirement for relievers; no limitation of daily activities; near-normal lung functions are the control assessment parameters of asthma defined by GINA guidelines [16-18]. However, it is recommended to evaluate all aspects of asthma control using multidimensional indexes such as quality of life and inflammatory biomarkers beyond symptoms and functional parameters to cover total disease control. It is difficult, expensive and time-consuming to investigate all parameters of asthma control in clinical practice [3,19]. A feasible and simple method is needed. Questionnaire was designed based on the parameters to be evaluated and previously available questionnaires in the literatures. Face validity has been performed at investigators and guide levels for screening the questions of knowledge. Questionnaire contains components to assess the knowledge of asthma patients toward their disease and treatment. It contains 8 knowledge questions shown in Table 1 [20,21].

### MA

Patient knowledge and therapeutic adherence would be extent to which a patients behavior coincides with health related advice and ability of the asthmatic patient to attend clinic appointments as per scheduled, take medicines as prescribed, and lifestyle modification and complete recommendation for asthma. Drug adherence to drug treatment will be reported to low among patients with BA. In asthma different classes of drugs are often used in mono and combination regimens requiring multiple daily doses of antiasthmatic agent. The resulting dosage schedules are often extremely complex. It will be considered that complex drug therapy results in poor compliance. It will be increased morbidity and mortality. There are a number of studies has been reported that 50% of asthmatic patients do not use it as prescribed and counseled or do not use their medicines. In a recent document, the WHO recognized the lack of knowledge and adherence as a major problem in the management of chronic disease including asthma and concluded that improving adherence would have a more beneficial impact on health outcome than improving specific treatment for asthma [22-25]. Previously validated 8 item adherence scale by Dr. Morisky DE was used and prior permission has taken before conducting the study. The reliability of the questionnaire was found alpha reliability of 0.83. Tran's validation was done by consulting proficient experts in Kannada and English according to the preferences of the author Dr. Morisky DE, and acceptance was obtained for the usage of Kannada version questionnaire. The knowledge, attitude, and MMAS 8 items were administered to all enrolled patients, to assess the knowledge and drug adherence patients shown in Table 2 [26-28].

### RESULTS

A total of 99 patients met the inclusion criteria. The demographic details of the enrolled asthma patients were as shown in Table 3. The percentage of the mean score of knowledge and MA are 17% and 18%, with their standard deviation of 1.51 and 1.64, respectively.

Assessment of knowledge and the analysis of acquaintance results was assessed by the percentage of patients answering each item are as shown in Table 3. A total of 78% of asthma patients said that there are no disadvantages for asthma patients for being in close contact with cats or dogs; 22% some of the medicines used for asthma may have to be used even when author is not having symptoms of asthma; 37% medicines used for asthma attacks constrict air pipes; 13% medicines used for asthma helps in reducing inflammation of air pipes; 55% smoking can worsen asthma; 6% asthma patients may have increase in symptoms or attacks of asthma during hot weather; 56% coughing and difficulty in breathing are the common symptoms of asthma patients and 12% lungs and air pipes are affected when author have asthma, respectively, shown in Table 4.

The analysis of attitude results was assessed by the percentage of patients answering each item is as shown in Table 4. Assessing the level of adherence to antiasthmatics (n=99) the level of adherence in the patients were found to be low adherence in 77 (77.78%); medium adherence in 20 (20.20%); and high adherence in only 2 (2.02%),

**Table 1: Assessment on disease knowledge questionnaire**

| Assessment on disease knowledge questionnaire |
| --- |
| Lungs and air pipes are affected when you have asthma |
| There are no disadvantages for asthma patients for being in close contact with home pets |
| Patients may have increase in symptoms or attacks of asthma during changes in weather |
| Difficulty in breathing and coughing are the common symptoms of asthma patients |
| Smoking can worsen asthma |
| Medicines used for asthma attacks constrict air pipes |
| Medicines used for asthma can help in reducing inflammation of air pipes |
| Some of the medicines used for asthma may have to be used even when I am not having symptoms of asthma |

**Table 2: MMAS**

| Morisky drug adherence scale-questions |
| --- |
| Do you sometimes forget to take your (health concern) pills? |
| People sometimes miss taking their medications for reasons other than forgetting. Thinking over the past 2 weeks, were there any days when you did not take your (health concern) medicine? |
| Have you ever cut back or stopped taking your medication without telling your doctor, because you felt worse when you took it? |
| When you travel or leave home, do you sometimes forget to bring along your (health concern) medication? |
| Did you take your (health concern) medicine yesterday? |
| When you feel like your (health concern) is under control, do you sometimes stop taking your medicine? |
| Taking medication every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your (health concern) treatment plan? |
| How often do you have difficulty remembering to take all your medications? |
| Never/rarely...........................................4 |
| Once in a while.......................................3 |
| Sometimes..............................................2 |
| Usually...................................................1 |
| All the time.............................................0 |

MMAS: Morisky medication adherence scale

**Table 3: Demographic details of asthma patients (n=99)**

| Characteristics | Number of patients (%) |
| --- | --- |
| Age in years | |
|   18-30 | 24 (24) |
|   31-50 | 42 (42) |
|   >50 | 33 (34) |
| Sex | Total |
|   Male | 43 |
|   Female | 56 |
| Employment status | |
|   Student | 5 |
|   Employee | 33 |
|   House wife | 57 |
|   Unemployed | 4 |
| Duration of asthma (years) | |
|   <1 | 5 |
|   1-2 | 45 |
|   3-5 | 33 |
|   6-8 | 14 |
|   >8 | 2 |

**Table 4: Appraisal of disease knowledge questionnaire**

| Disease knowledge questionnaire | Total number sample | Yes | No | Yes (%) | No (%) |
|---|---|---|---|---|---|
| Lungs and air pipes are affected when you have asthma | 99 | 37 | 63 | 37 | 63 |
| There are no disadvantages for asthma patients for being in close contact with home pets | 99 | 22 | 78 | 22 | 78 |
| Patients may have increased in symptoms or attacks of asthma during changes in weather | 99 | 44 | 56 | 44 | 56 |
| Difficulty in breathing and coughing are the common symptoms of asthma patients | 99 | 37 | 63 | 37 | 63 |
| Smoking can worsen asthma | 99 | 94 | 6 | 94 | 6 |
| Medicines used for asthma attacks constrict air pipes | 99 | 87 | 13 | 87 | 13 |
| Medicines used for asthma can help in reducing inflammation of air pipes | 99 | 45 | 55 | 45 | 55 |
| Some of the medicines used for asthma may have to be used even when author is not having symptoms of asthma | 99 | 88 | 12 | 88 | 12 |

**Table 5: Medication adherence scale for asthma patients**

| Drug adherence scale-questions | Total number of patients | Yes | No | Yes (%) | No (%) |
|---|---|---|---|---|---|
| Do you sometimes forget to take your (health concern) pills? | 99 | 35 | 64 | 35 | 64 |
| People sometimes miss taking their medications for reasons other than forgetting. Thinking over the past 2 weeks, were there any days when you did not take your (health concern) medicine? | 99 | 37 | 62 | 37 | 62 |
| Have you ever cut back or stopped taking your medication without telling your doctor, because you felt worse when you took it? | 99 | 57 | 42 | 57 | 42 |
| When you travel or leave home, do you sometimes forget to bring along your (health concern) medication? | 99 | 3 | 96 | 3 | 96 |
| Did you take your (health concern) medicine yesterday? | 99 | 0 | 99 | 0 | 100 |
| When you feel like your (health concern) is under control, do you sometimes stop taking your medicine? | 99 | 99 | 0 | 100 | 0 |
| Taking medication every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your (health concern) treatment plan? | 99 | 82 | 17 | 82 | 17 |
| How often do you have difficulty remembering to take all your medications? | 99 | 80 | 19 | 80 | 19 |

respectively, with an inference value between males and females is 0.662 (Table 5).

## DISCUSSION

The success of any medical regimen prescribed for a meticulous patient often depends, in large part, on three factors (Right time, Right dose, Right treatment): (a) The patient's knowledge regarding the illness, which enables him/her to take appropriate action to control particular symptoms and (b) the patient's confidence in his or her ability to contribute to the management of the illness [29,30]. The maximum knowledge score is 16, 83.8% patients scored mean score of 13.42. In attitude maximum score is 24, 71.2% of patients scored mean score of 17.08. And in adherence maximum score is 8, 57.8% of patients scored mean score of 4.62; it is as shown in Table 2. It suggests that some knowledge and attitude may be due to repeated contacts with health-care service. If this contact is used effectively, with a bare minimum education program and attitude therapy it may improve compliance and adherence in asthmatic patients [21,26]. Occupational asthma is induced by an agent inhaled at work place, agents inhaled at work can aggravate pre-existing asthma but the term work-related asthma usually restricted to asthma initiated or induced by such agents. The most interesting finding in this study was the increased risk for asthma associated with professional exposure such as agricultural, iron industry, hotel workers, living together with cattle's (cow, dog, sheep, etc.), and house wives are major affected patients in our study. The reason for this is that the major risk factors for occupational asthma in a working population [27-31]. In the patients knowledge regarding the disease and antiasthmatics score found better, so it is very essential to educate the patients regarding the some of the lacks observed. It is due to misconceptions about asthma drugs usage, 46.5% of patients do not know about the affect of living together with animals will increase severity of asthma, a similar type of results found out were reported in the other studies [32-35].

## CONCLUSION

This study confirmed that substantial numbers of people with asthma lack the necessary attitude to contribute effectively to their disease state management. This study also shows that how different factors may modulate adherence to asthma treatment. The opportunity to identify reasons for nonadherence through a simple assessment will allow a tailored intervention to be planned for each patient. The study conventional better knowledge compared to attitude and disturbing levels of adherence with management recommendations. Asthma education strategies need to be conducted to engage patients with low asthma attitude to achieve improved patient outcomes, including quality of life. Further, strategies need to be motivated patients to use preventer medication during times when they feel well the primary focus should be to identify negative and work toward positive changes to achieve good self-management of asthma.

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