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Original Research Article

Factors Affecting Patient's Compliance to Inhaled Medications in Asthma

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Abstract

Background: Asthma affects around 300 million people worldwide [1]. Asthma is characterized by chronic airway inflammation. The current treatment regimen is low dose inhaled corticosteroids plus long – acting beta agonist (LABA). Effective control is achieved by taking inhaled medication in proper technique which lead to effective drug deposition in lung. Compliance with inhaled respiratory medications is 40-50%. Low value of 15% also reported [7]. ***Objective:*** Determination of compliance towards inhaled medication in asthma patients one year after being prescribed and factors influencing patient's compliance to inhaled medication in asthma. ***Methodology:*** Compliance to inhaled medication assessed by standard set of questionnaires in 260 Asthma patient who were above 18 years from both sex taking inhaled medication for one year. Patient who attended pulmonary Medicine OPD from March 2016 to March 2017 were assessed. ***Results and Discussion***: Mean age of the patient was 57.67 years. 65% of the patients were female. Among the 260 patients, 40% of the patients were having elementary school education. Percentage of patients using inhaler regularly is 26.6%. Percentage of patients trained to use inhaler properly is 23.9%. Good technique of using inhalers has significant association with proper training to use inhalers (P value – 0.0001) and also with proper counselling. (P value – 0.0001). There is also significant association between counselling regarding use of inhalers and its regular usage. ***Conclusion:*** Factors affecting the patient's compliance to inhaled medication is proper counselling regarding the use of inhalers and proper training to use inhaler. Compliance can be improved by providing adequate knowledge about disease and its control, teaching the patients about correct technique of using inhaled medications.

Keywords: Asthma, compliance, Inhaled Medication, attitude, Metered Dose Inhalers, Dry Powder Inhaler, Inhaler technique.

INTRODUCTION

Asthma affects an estimated 300 million people worldwide [1], and prevalence is continuing to rise throughout the world [2, 3]. Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation[4]. It is defined by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness, and cough that vary over time and in intensity, together with variable expiratory airflow limitation [4]. Bronchial asthma is chronic, inflammatory disease of respiratory tract characterized by bronchial hyper reactivity and respiratory obstruction. The development is a multi-causal process, which is caused by exogenic factors (environment factors) and also by genetic dispositions (allergens). Genetic disposition and exogenous agents trigger three pathophysiological processes which characterize asthma: inflammation of bronchi, bronchial hyperactivity and endobronchial obstruction [5, 6].

The current treatment regimen for bronchial asthma which is preferred is low dose inhaled corticosteroids plus a long – acting beta agonist (LABA) [5, 6]. Effective control can be achieved only by taking inhaled medication in proper technique which will lead to effective drug deposition in lung and thereby controlling asthmatic attack. In addition to correct management, compliance to therapeutic regimen is necessary to improve health.

Medication compliance refers to the degree or extent of conformity to the recommendations about day to day treatment by the provider with respect to timing, dosage, and frequency [7]. Estimation of compliance with inhaled respiratory medications are invariably poor, and are in the range of 40-50% [8, 9]. Values as low as 15% have been reported [10]. Long term compliance is a problem in chronic respiratory disease. Compliance gradually declined during the 4 months between clinic visits and improved immediately after each clinic visit. This improvement post visit decreased with each clinic visit in long term clinical trials [11, 12]. Only half of patients with severe disease compliance to medication [13-15].

A Mixture of socio-economic, demographic and personal factors appeared to affect compliance more than symptom severity in these patient, thus it's important to uncover the factors influencing the compliance to inhaled medication [14, 15].

There are no such studies performed in Kerala, therefore it is imperative to identify and report the factors that influence the patient's compliance to inhaled medication in this area and develop strategy to improve the compliance.

Objectives

To determine the compliance towards inhaled medication in Asthma patients one year after being prescribed and factors influencing patient's compliances to inhaled medication in Asthma.

METHODOLOGY

Study Design

Cross – sectional study with study period from March 2016 to March 2017

Study Setting

Department of Pulmonary Medicine, Azeezia Institute of Medical Sciences & Research, Kollam.

Study Population: Asthma diagnosed patient coming to Pulmonary OPD who were on inhaled medication past one year.

Inclusion Criteria

- Above 18 to 70 years of age of both sex
- Diagnosis made by Pulmonologist according to GINA guidelines

Exclusion Criteria

- Patient with coexisting COPD or other chronic lung diseases.

Sample Size

260 Asthma diagnosed patient were enrolled into study

Ethical Consideration

Ethical clearance was obtained from Institutional Human Ethics Committee. A written, signed informed consent was obtained from the patient enrolled. Confidentiality and anonymity of the patient's information were maintained during and after study.

Study Procedure

Study was started after getting approval from Azeezia Ethics Committee and conducted only on those patients who have given written informed consent. Patients were assessed by standard set of questionnaires. The questionnaire was filled by the investigator himself. The questionnaire included demographic data, medical history of patient, history of prescribed medications for asthma, patient's compliance to drug. Compliance were divided into intentional compliance and non- intentional compliance. Intentional compliance patient intentionally not taking medication properly. Non-intentional means because of lack of knowledge of proper steps of taking drug, compliance will be affected.

RESULTS

260 asthmatic patients were assessed. The mean age of the patient were 57.67 years. 65% of the patients were female. Among the 260 patients, 40% of the patients were having elementary school education.

Table-1: Demographic data of patients

	Number (%)
Age	
Mean ± SD	57.67 ± 12.78
Sex	
Female	171 (65.6%)
Male	55 (34.4%)
Literacy level	
Illiterate	63 (24.2 %)
Elementary School education	104 (40.0 %)
High School	45 (17.30 %)
Degree	29 (11.15 %)
Post Graduate	19 (7.30 %)

Percentage of compliance were measured by looking into intentional compliance and non-intentional compliance. It was found out that only one – fourth of the total patients were compliant to inhaled medication.

Table-2: Percentage of compliance

Intentional Compliance	Non-intentional Compliance
Percentage of patients using inhaler regularly -26.6%	Percentage of patients trained to use inhaler properly -23.9%

Various factors affecting compliance were studied. This included proper usage of devices which was measured by assessing the steps of taking the inhaler medication. Other factors were their knowledge about the disease and its treatment, reasons for not taking medication regularly and proper counselling by the doctors regarding the treatment with inhalers.

Table-3: Percentage of patients to various factors affecting compliance

Factors	Percentage of patients
Proper usage of MDI MDI with spacer DPI	 13.46% 8% 6%
Patients using inhaler regularly	26.6%
Not using, Not directed by doctors to use regularly Symptoms reduce after taking short course	 41.9% 11.4%
Who diagnosed – Physician GP Pulmonologist	54.3% 30.5% 14.3%
Patients who knew diagnosis	34.3%
Patients counselled to use inhaled medicine	26.6%
Patients trained to use inhalers	23.9%
Patients to which doctors ask about compliance	2.9%
Patients to which adequate medicine was given as per GINA	25.5%

Good technique of using inhalers have significant association with proper training to use inhalers (P value – 0.0001) and also with proper counselling. (P value – 0.0001). There is also significant association between counselling regarding use of inhalers and its regular usage.

Good technique of using inhaler

Counselled to use inhalers		YES	NO
	YES	60	29
	NO	13	158

Chi square x^2 = 103.7031

P value = 0.0001

Fig-1: Association between good technique of using inhaler and counselling

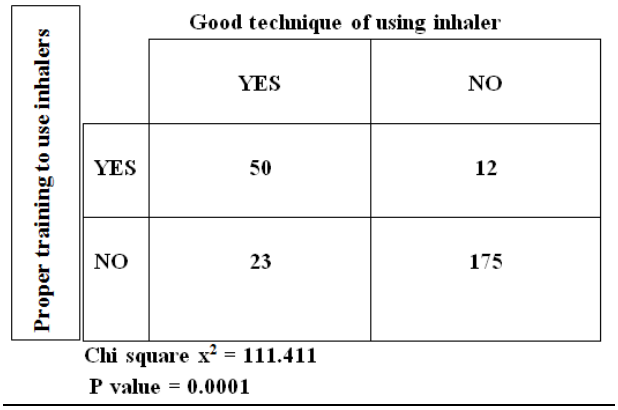

Fig-2: Association between good technique of using inhaler with proper training

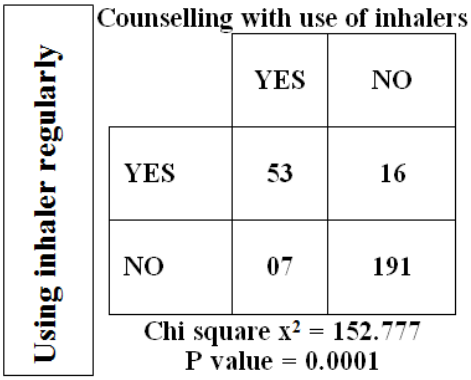

Fig-3: Association between counselling with use of inhalers with its regular usage

DISCUSSION

Optimum drug treatment and good care can convert asthma from a major handicap to a minor inconvenience, yet it continues to be an important cause of morbidity and mortality [15].

The effect of patient's literacy level has shown to have positive impact on compliance with the treatment regimen. It was found out from the study that 66.7% of the patients were not aware of their diagnosis, 75.3% were not properly trained. And 41% of patients were not using regularly. This was mainly due to inadequate or lack of proper advice by the treating doctor.

Patients who were aware of the diagnosis and those who were properly counselled and trained were more likely to use inhaler regularly. Although some studies have reported age and sex as factors influencing patient's compliance, our study have not looked in that. Limitation of the study were less number of patients, short duration of study, Compliance were only assessed only with no follow- up assessment.

For future research, the study should be repeated using a larger sample size and more community-based investigations should be undertaken to represent the full spectrum of people with asthma. In addition, more standardized methods should be used to assess compliance, attitude, knowledge, and asthma control. As it was show knowledge about the difference between preventive and curative medications has direct and indirect effect on patients' compliance and must be considered as other major factor of compliance with treatment. Other factors that should be considered in future studies are family support, compliance with oral medications, good inhaler technique use and using various devices and psychological factors that may influence compliance.

CONCLUSION

The main factors influencing the patient's compliance to inhaled medication is proper counselling regarding the use of inhalers and proper training to use inhaler. Compliance can be improved by providing adequate knowledge about disease and its control, teaching the patients about correct technique of using inhaled medications.

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