ORIGINAL ARTICLE

Evaluation of Medication Compliance among Asthmatic Patients in Ahvaz, Iran

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ABSTRACT

Background: Medication compliance plays an important role in the health of patients, especially those inflicted with asthma. The present study was conducted to investigate medication compliance among the asthmatic patients in Ahvaz, Iran, in 2005.

Materials and Methods: This descriptive study was conducted on 74 asthmatic patients referring to the Allergy and Asthma Clinic of Imam Khomeini Hospital in Ahvaz. The participants were selected using simple random sampling technique. The data were collected through a researcher-made questionnaire related to medication compliance. The content validity of the questionnaire was confirmed, and its reliability was evaluated using the Cronbach's alpha coefficient. The data were analyzed using the Chi- square test through the SPSS, version 16.

Results: According to the results, 40 participants were male with the mean age of 41±16.4 years. Furthermore, the mean duration of asthma was 8.4±8.8 years. The majority of the participants (67.5%) had relatively good level of medication compliance. There was no statistically significant relationship between age, sex, disease duration and medication compliance. In addition, medication compliance showed no statistically significant relationship with age, gender, residence status, education level, and marital status.

Conclusion: As the findings of the present study indicated, the majority of the participants enjoyed an average level of medication compliance. Therefore, it is essential to apply educational programs targeting toward improving medication compliance in the asthmatic patients.

Key Words: Allergy, Asthma, Medication compliance

INTRODUCTION

Asthma is a main problem in many parts of the world; however, the diagnosis and treatment of this disease is still a health challenge. Annually, a large number of people suffering from asthma lose their lives [1]. The mortality rate due to asthma is on a growing trend in most countries [2]. Asthma is a prevalent and potentially serious chronic disease, which incurs significant burden on the patients, their families, and society [3]. Across the world, 300 million people are inflicted with asthma; therefore, this disease is a serious global health problem in all age groups with an increasing prevalence in many developing countries [4]. This disease has the prevalence rates of 0.4%-4.8% with a financial burden of 17.23 million [5].

The investigation of medication knowledge and awareness as well as medication consumption can be helpful in screening the healthcare problems and improving healthcare outcomes [6]. Asthma medication non-compliance leads to an increase in emergency care requirement and mortality [7]. Therefore, it is of fundamental importance to consider this issue in the asthmatic patients [8]. Poor drug compliance leads to the manifestation of some symptoms in asthmatic patients, such as shortness of breath, exercise intolerance, impaired daily work, hospitalization, and ultimately failure to control disease [4].

Medication compliance is commonly defined as the patients' behavior in taking medicine according to the recommendations made by the

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healthcare providers. Compliance can be divided into two main concepts, namely sustainability and implementation. Sustainability is characterized by the period between treatment initiation and treatment completion, while implementation refers to the comparison of the amount of prescribed medications and patients' medication history during the treatment. The second definition of this concept has to do with forgetting to consume the prescribed medication more than twice a day.

The percentage of the minimum compliance required for obtaining the complete advantage of medication has remained unknown; however, this rate is mostly reported to be 80% [9, 10]. The effect of medication depends on the patients' efficiency and compliance in following a predetermined diet. Regarding this, medication compliance is essential in order to obtain maximum healthcare benefits [11]. Therefore, it is crucial to promote medication compliance among the patients and increase their awareness in this regard to improve the patients' health and prevent the associated complications [12].

The World Health Organization (2002) has introduced medication compliance as the first determining factor in treatment success [13]. Given the extent of noncompliance and its consequent financial and physical losses, several studies have been conducted to identify its associated causes and factors. There are more than 200 factors contributing to the medication noncompliance. These factors can be generally divided into two groups of intentional and unintentional. The intentional medication noncompliance is related to the patient's motivation and belief about drug consumption. In contrast, the unintentional noncompliance is associated with the patient's abilities and skills in medicine consumption (i.e., problems related to physical skills or forgetfulness) [13].

Treatment noncompliance is an outstanding global problem [14]. For example, the rates of medication compliance in hypertension (in China), asthma, diabetes mellitus, and hyperlipidemia are 57% [15], 30-70% [16], 21.3% [17], and 53.8% [18], respectively. Moreover, 512 out of 1,521 people, who were under pharmaceutical therapy after heart attack, completely discontinued one to three medications after a month [19]. Medication compliance plays an important role in the health of the patients with asthma [14, 15, 17, 20]. With this background in mind, the present study was conducted to investigate medication compliance in the asthmatic patients referring to the Allergy and Asthma Clinic of a teaching hospital in Ahvaz in 2005.

MATERIALS AND METHODS

This descriptive study was conducted on 74 asthmatic patients referring to the Allergy and Asthma Clinic of Imam Khomeini Hospital in Ahvaz, Iran, in 2005. The inclusion criteria were: 1) age of > 18 years, 2) asthma duration of at least three months, 3) being under the supervision of a specialist, 4) aural and visual abilities, and 5) acceptable consciousness to respond to the questions.

On the other hand, the patients suffering from other chronic diseases were excluded from the study. For sampling, the researcher referred to the respective clinic and prepared a list of the patients with asthma. Subsequently, the study population was selected based on simple random sampling technique.

The data were collected using a researcher-made questionnaire covering medication compliance. This questionnaire consists of two sections. The first part enquires the participants' demographic information, including the disease type, duration of disease, age, gender, education level, marital status, occupation, residence status, per capita income, insurance status, as well as number and type of drugs. On the other hand, the second section evaluates the rate of medication compliance, which was rated on five-point Likert scale (5=never, 4=seldom, 3=sometimes, 2=often, and 1= always).

Similar tools have been frequently utilized in several countries [14]. In this questionnaire, the maximum and minimum scores are 10 and 50, respectively. Score 50 signifies treatment compliance, while scores lower than 50 indicates medication noncompliance. Accordingly, score ranges of 10-20, 21-35, and 36-49 represent severe, medium, and weak noncompliance, respectively. A questionnaire similar to our instrument was used in a study earlier [20].

The reliability of the questionnaire was evaluated, rendering a Cronbach's alpha index of 0.730. In formulating the questions of the questionnaire, the experts' opinions were used. Subsequently, the questionnaire was given to 10 faculty members of Arak University of Medical Sciences, who confirmed the content and face validities of this tool. The questionnaires were filled out by two trained nurses at one stage.

The data were analyzed by descriptive analytic statistics through the SPSS, version 16. In all measurements P-value less than 0.05 was considered as statistically significant.

RESULTS

According to the results, the mean age of the participants was 41±16.4 years with the minimum and maximum values of 21 and 83 years, respectively. Furthermore, 49.5% of the participants were female. Most of the subjects (95.9%) lived in the urban areas, and others (4.1%) lived in the rural areas. The majority of the subjects (90.5%) were covered by health insurance, and a few of them had no health coverage. The mean disease duration was 8.4±8.8 years with the maximum and minimum durations of 40 and 1 years, respectively. Other demographic characteristics of the participants are presented in Table 1.

Table 1. Demographic characteristics of the study participants

Variables	Subgroups	Number	Percentage
Marital status	Married	38	51.3
	Divorced	6	8.1
	Widow	5	6.8
	Single	25	33.8
Occupation	Employee	16	21.6
	Self-employed	18	24.2
	Housewife	20	27
	Soldier	1	1.5
	Unemployed	4	5.5
	Farmer	3	4
	Retired	6	8.1
	No answer	6	8.1
Education level	Illiterate	4	5.4
	Under diploma	30	40.5
	Diploma	13	17.6
	Academic	27	36.5

The results revealed that most of the subjects had relatively good level of medication compliance (67.5%) and others had medium level of compliance (32.5%). However, none of the subjects had full medication compliance (Table 2).

Medication compliance showed no statistically significant relationship with age, gender, residence status, education level, and marital status. Medication compliance had a Chi-square value of 2.22 with freedom degree of 1 (P=0.136).

Table 2. Rate of medication compliance in the study participants

Rate of medication compliance	Frequency	Percentage
Weak medication compliance	0	0
Average medication compliance	24	32.5%
Relatively good medication compliance	50	67.5%
Full medication compliance	0	0
Total	74	100%

Medication compliance in these patients was in the form of not taking medication on time, taking wrong doses of medication, forgetting some doses, ineffective use of spray, misunderstanding about the importance of taking medication, intentional use of medication at critical times, etc.

DISCUSSION

The findings of this study demonstrated that medication compliance is at an inadequate level among the patients with asthma. This issue, along with the lack of proper and on time medication consumption, leads to the hospitalization of the patients and deterioration of their conditions. Accordingly, high rates of hospitalization have been reported in this regard.

According to the Asthma and Allergy Association, each patient averagely spends 5 million Iranian Rials (145 USD) on medication and treatment, including the admission costs [19]. In the present study, there was no statistically significant relationship among the demographic information (e.g., age, gender, and job) at the significance level of 0.05 in all cases. Likewise, no statistically significant relationship was observed between the demographic factors and medication compliance [20].

However, in a study performed on the patients who took warfarin, warfarin compliance had a significant relationship with the patients' education, life style, occupation, residence area, and income status [21]. In the present study, 32.5% and 67.5% of the patients showed average and relatively good medication compliance, respectively. In India and Sweden, the rates of compliance were reported to be at an average level in 42.5% and 55.3% of the patients, respectively [12, 22].

The findings of the present study showed that there was a statistically significant relationship between medication compliance and the number of hospital stays, rendering a correlation coefficient of -0.76. In other words, with a decrease in medication compliance level, the number of hospitalization would increase. Despite the findings of the present study, Clatworthy et al. did not find any relationship between asthma control and medication compliance [23].

The researchers of the present study investigated compliance with medication asthma in Ahvaz in order to be able to prevent acute asthma attacks through the employment of correct training about treatment compliance.

Therefore, it seems there is not much difference between the results of the present

study and those reported by other researches.

There are many defects in the health care systems of Iran that can justify the high medication noncompliance. For example, the members of the treatment team do not properly provide the patients with the treatment recommendations and necessary training on the disease or its controlling and treatment methods. Furthermore, there is no organized structure for monitoring and follow-up of the patients with chronic diseases.

Accordingly, it seems that many patients with chronic diseases never refer to the healthcare centers due to the lack of awareness in this regard. Given the absence of chronic diseases database, the sampling was carried out using the patients hospitalized and referring to a clinic. Therefore, the real statistics of medication compliance might be higher than the presented values because many of these patients discontinue their medication intentionally and completely and are not under long-term treatment.

Regarding the factors associated with medication noncompliance, many patients with asthma were reported to abstain from the consumption of medication since they thought that medication consumption was not necessary and/or were worried about the possible side effects [24]. Furthermore, approximately one third of these patients were very worried about the side effects of inhaled corticosteroids [24].

In a study, which investigated the reasons of medication noncompliance in the patients with chronic diseases, medication noncompliance was observed to be more frequent among the patients with asthma than among those with diabetes and coronary artery disease [20]. The results of different studies have revealed the importance of directing more attention to the provision of medication compliance training for these patients by the treatment system.

Therefore, it is suggested to conduct further studies on the effects of self-care education and medication compliance training on the basis of different educational patterns. Intervention and education have been revealed to be effective in asthma control [25].

In a study in Canada, it was concluded that the improvement of medication compliance was facilitated by the implementation of some interventions toward the interaction of patients, doctors, and healthcare system [26]. Moreover, in Netherland, education improved medication compliance and asthma control in children [27].

CONCLUSION

As the findings of this study revealed, medication compliance in the asthmatic patients was at an average level. Regarding the importance of adherence to the treatment by the patients, it is necessary for all the healthcare providers, including the doctors and nurses, to be aware of this issue. Accordingly, the health providers should inform the patients about the importance of complete medicine consumption and proper rout of medication administration.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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