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Clinician's perspective regarding medication adherence in patients with obstructive lung diseases and the impact of COVID-19

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SUMMARY

OBJECTIVE: Failure to achieve high levels of medication adherence in obstructive lung diseases is a major cause of uncontrolled disease. The purpose of this study is to reveal clinicians' opinions on the level of patient adherence and the change in adherence during the COVID-19 pandemic.

METHODS: A questionnaire containing multiple-choice questions about treatment adherence in patients with obstructive lung diseases was voluntarily applied to doctors working in a tertiary hospital for chest diseases.

RESULTS: Eighty-one doctors (mean age, 37.2 years [standard deviation, 9.7 years]; 57 (70.4%) women) answered the questionnaires. Almost all clinicians participating in the study reported that they always or frequently asked patients if they adhered to treatment. Most clinicians think that in 20–50% of patients with asthma and less than 20% of patients with chronic obstructive pulmonary disease, a decrease in medication adherence appears in the first year of treatment. Most clinicians think the main reason for patients with obstructive lung diseases not adhering is patients' reluctance to be treated regularly. Regarding the impact of the COVID-19 pandemic on patients' drug adherence, 43.2% of clinicians observed that adherence increased after the start of the pandemic.

CONCLUSION: Adherence to medication is not at the desired levels in patients with obstructive lung diseases. However, when faced with a serious health threat, such as the COVID-19 pandemic, patients realize the severity of their illness and begin using their treatments more regularly.

KEYWORDS: Asthma. Pulmonary disease, chronic obstructive. Coronavirus infections. Medication adherence.

INTRODUCTION

Despite significant advances in the treatment of asthma and chronic obstructive pulmonary disease (COPD), the control of patients cannot be raised to desired levels. One of the leading causes of uncontrolled disease in patients with asthma and COPD is poor medication adherence[1,2]. Proper medication adherence is a key factor in determining uncontrolled asthma instead of diagnosing severe asthma in asthmatics. It is also important to determine medication adherence in calculating the risk of exacerbation in asthmatics. Therefore, asthma guidelines strongly recommend that all asthmatics be evaluated by clinicians at each visit. If asthmatics are not provided to use their treatment with high adherence, uncontrolled asthma rates, asthma exacerbation frequency, and the risks of fixed airway

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obstruction in the future will increase. In addition, in patients with uncontrolled asthma with poor adherence to treatment, the disease cannot be adequately managed, and the unnecessary use of biological agents puts an additional burden on the country's economy[1].

The guidelines for patients with COPD, as well as for patients with asthma, highlight the importance of medication adherence. Poor medication adherence in patients with COPD has implications for disease management. It is a main risk factor for exacerbation and hospitalization in patients with COPD. Therefore, assessing and improving medication adherence in COPD patients is a necessity in COPD care[2].

Close follow-up of patients with asthma and COPD is a key factor in improving treatment adherence. In addition, patients' treatment concerns such as perceived need for treatment and side effects and economic factors may also be important in medication adherence. An example of this is the reported improvement in treatment adherence of patients with asthma and COPD during the first weeks of the COVID-19 pandemic, likely due to the patients' perception of the disease[3].

The aim of this study was to determine the opinion of clinicians on medication adherence and factors affecting it in patients with obstructive lung diseases and to determine how clinicians manage poor inhaler treatment adherence. In addition, the objective was to evaluate clinicians' views on the impact of the COVID-19 outbreak on patient compliance with inhaler therapy.

METHODS

Recruitment and data collection

A questionnaire consisted of multiple-choice questions was applied to allergy and chest diseases physicians working in a training and research hospital in Ankara, Turkey, on a voluntary basis. The questionnaire used in the study was prepared based on the questions found in the questionnaire that Kardas et al[4]. used in their study in 2015. Clinicians participating in the survey were questioned about their age and gender and their opinions about the treatment adherence of the patients with asthma and COPD they followed.

Statistical Analysis

Descriptive statistics were used in the survey findings. Continuous variables were expressed as mean ± standard deviation (SD) and categorical variables were expressed as numbers (percentages). Analyses were performed using the Statistical Package for the Social Sciences®, version 22.

Standard Protocol Approvals and Patient Consents

This study was approved by the Ethics Committee of the University of Health Sciences, Keçiören Training and Research Hospital on October 14th, 2020, under decision number 2174. Informed consent was obtained from all participants.

RESULTS

Within the scope of this study, 81 clinicians working in a tertiary hospital for thoracic diseases were administered a questionnaire containing questions about the adherence of patients with asthma and COPD they followed. All 81 clinicians agreed to participate in the study and answered the questionnaires. Seven of the clinicians who completed the questionnaire were allergists and 74 were pulmonologists. Clinicians' mean age was 37.2 years (SD 9.7 years), and the gender distribution was 57 females (70.4%) and 24 males (29.6%).

Almost all clinicians participating in the study reported that they always or often asked patients whether they adhere to treatment. Almost all participant clinicians reported that they always or often could correctly determine the treatment adherence in patients. The rate of clinicians who think that more than 50% of asthmatic patients discontinue treatment within 1 year after diagnosis is 24.7% and that of clinicians who think that patients with COPD stop treatment within 1 year after diagnosis is 4.9%. The majority of clinicians think that 20–50% of patients with asthma and less than 20% of patients with COPD experience a decrease in medication adherence in the first year of treatment (Table 1). Most clinicians think that the main reason for non-adherence of patients with asthma and COPD is the reluctance of patients to be treated regularly. Most clinicians prescribe combined inhaled medications containing multiple active ingredients in a single dose to improve adherence in patients with asthma and COPD (Table 2). Regarding the impact of the COVID-19 outbreak on treatment adherence of patients with asthma or COPD, 43.2% of clinicians thought that patients' adherence to treatment increased after the onset of the COVID-19 outbreak, while 18.5% of clinicians thought that it decreased during the COVID-19 outbreak (Table 3).

DISCUSSION

The major finding of our study is the incomplete adherence to treatment in patients with asthma and COPD, in the opinion of the clinicians. According to the study findings, 24.7% of clinicians think that more than 50% of patients with asthma discontinue treatment within 1 year after diagnosis. It appears that medication adherence is slightly higher in patients with

Table 1. Clinicians' views on treatment adherence of patients with obstructive lung diseases (n=81).

At what rate do clinicians ask patients' adherence to treatment	
Rarely	3 (3.7)
Frequently	39 (48.1)
Always	39 (48.1)
To what extent do clinicians think they can understand patients' adherence to treatment	
Rarely	7 (8.6)
Frequently	62 (76.5)
Always	12 (14.8)
To what extent do clinicians think that patients with asthma stop treatment within 1 year after diagnosis	
Less than 20%	17 (21.0)
20–50%	31 (38.3)
50–80%	15 (18.5)
More than 80%	5 (6.2)
No opinion	13 (16.0)
To what extent do clinicians think that patients with COPD stop treatment within 1 year after diagnosis	
Less than 20%	42 (51.9)
20–50%	15 (18.5)
50–80%	3 (3.7)
More than 80%	1 (1.2)
No opinion	20 (24.7)

Data indicated in n (%). COPD: chronic obstructive pulmonary disease.

Table 2. According to the participants, the main causes of treatment non-adherence in patients with obstructive lung diseases and the interventions performed by the respondents in case of treatment non-adherence (n=81).

The main reason for medication non-adherence	
Side effects of medications	17 (21.0)
Price of drugs	9 (11.1)
Frequency of dosing	18 (22.2)
The effects of the treatment are not noticed by the patient	43 (53.1)
Unwillingness of patients to be treated with a regular treatment regimen	56 (69.1)
Patients' lack of information about their diseases	46 (56.8)
Interventions performed by the respondents to improve medication adherence	
To prescribe drugs named short and easy to remember	5 (6.2)
To prescribe cheap drugs	14 (17.3)
To prescribe combination inhaled drugs containing multiple active ingredients in a single dose	77 (95.1)
To prescribe inhaled drugs not including glucose	1 (1.2)
To prescribe drugs that are used once a day	48 (59.3)

Data indicated in n (%).

Table 3. Impact of the COVID-19 outbreak on medication adherence in patients with obstructive lung diseases, according to respondents (n=81).

Increase in medication adherence	35 (43.2)
Decrease in medication adherence	15 (18.5)
No change in medication adherence	18 (22.2)
No opinion	13 (16.0)

Data indicated in n (%).

COPD than in patients with asthma. The rate of clinicians who think that more than 50% of patients with COPD discontinue treatment within 1 year after diagnosis is 4.9%. The majority of clinicians think that less than 20% of patients with COPD discontinue medication adherence in the first year of treatment. The most important reason for poor adherence in patients is the reluctance of patients to use regular treatment. Another important finding of the study is that clinicians realized that after the onset of the COVID-19 pandemic, treatment adherence increased in patients with obstructive lung diseases. Although patients with obstructive lung diseases do not use their treatments regularly enough, increased medication adherence when they face a serious health threat such as the COVID-19 pandemic shows that patients do not understand the severity of their illness and this hinders the regular use of their treatment.

Adherence to inhaler therapy in patients with obstructive lung diseases has become a clinical problem with the age of this therapy[5]. Poor adherence in patients with asthma and COPD is associated with failure to control the disease, frequent exacerbations, and increased mortality[6-12]. Almost all of the clinicians participating in the present study stated that they questioned patients about their drug adherence. There are some objective methods in the follow-up of adherence. Biochemical measurements in blood can precisely determine the treatment

adherence of patients. However, such a method is costly, invasive, and provides an estimate of adherence over a point period. Smart electronic inhalers can also aid in the objective tracking of adherence, but are not currently used worldwide. Pharmacy refills or prescription renewals in the clinic can be used to identify nonadherent patients, and can help target interventions to those who would most benefit from the intervention. Regular face-to-face interviews that provide effective patient-clinician communication are effective in building real insight into adherence[13]. Each method to track adherence has its own strengths and weaknesses, and none are specifically designed for a particular type of adherence.

Medication adherence issues can differ on a patient basis and between countries. Each country should search its own adherence problems and develop appropriate strategies. For example, in our country, as drugs are within the scope of reimbursement, the price of drugs is not specified among the prominent factors for treatment non-adherence in patients. However, in different countries, this factor may be an important determinant of adherence. Unfortunately, there is no magic statement in medicine to increase adherence. In the present study, clinicians stated that they tried to prescribe inhalation drug combinations containing more than one active ingredient at a time, and to prescribe drugs used once a day, in line with the causes of inhaler treatment non-adherence in patients.

While some patients show poor adherence with to the treatment from the beginning, others start to disrupt their treatment regimen in the long term[14]. In the present study, it was revealed that the compliance of asthmatic patients to their treatment decreased at a higher rate in the first year after diagnosis compared to patients with COPD. The reasons for this situation may be that asthmatic patients do not feel the need to continue their treatment after clinical improvement and fear the prospective side effects of inhaled steroids. According to the clinicians involved in this study, the main reason for non-adherence to treatment with inhalers in patients is that they do not want to use a regular treatment regimen. Other factors underlying non-adherence to inhaler treatment are the patients' inability to feel the effect of the treatment, the necessity of frequent administration of the drugs, and the hesitation toward drug side effects. In the past, the poor adherence of patients to inhaler therapy has been attributed to similar factors. It was stated fourteen years ago that patients' perception about their medications as unnecessary and their worrying about possible side effects were prominent factors for poor medication adherence[15]. This shows that we, as clinicians, have not been able to go a long way toward improving adherence in the past ten years. It is clear that more effective ways to address patients' concerns about disease perceptions and treatments are necessary.

The results of our study coincide with the results of the Recognise Asthma and Link to Symptoms and Experience (REALISE) Asia study published in 2016. In that study, the most important reason of treatment non-adherence reported by clinicians is that patients do not want to use their treatment regularly[16]. Similarly, in another study conducted in Poland, clinicians reported that the main reasons why asthma and COPD patients stopped treatment were primarily discouragement and insufficient knowledge of the disease[4]. These findings tell us that clinicians should clearly explain patients why treatment is necessary. They should also address patients' concerns about possible side effects. In this way, important causes of medication non-adherence will be solved to a larger extent. Similar to a previous report, the finding that inhaler treatment adherence increased during the COVID-19 epidemic in our study indicates that patients should be warned about the absolute need for treatment[3].

The major limitation of the present study is the small number of participants. However, its strength is that it includes specialist physicians who are experts in this field and regularly follow-up patients with asthma and COPD in a tertiary thoracic diseases hospital.

As a conclusion, it has been demonstrated by the experts of this subject that the adherence to inhaler treatments in patients with asthma and COPD is poor. Thus, it is clear that attempts should be made to improve adherence in patients with obstructive lung diseases. The observations of the clinicians participating in our study are also consistent with the increase in treatment compliance in patients with asthma and COPD after the previously reported COVID-19 pandemic.

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AVAILABILITY OF DATA AND MATERIAL

The dataset used and/or analyzed during the present study is available on reasonable request.

AUTHORS' CONTRIBUITION

MY: Conceptualization, Data Curation, Methodology, Writing – Original Draft. **FA:** Conceptualization, Methodology, Formal Analysis, Writing – Original Draft. **NY:** Conceptualization, Methodology, Writing – Original Draft. **KA:** Conceptualization, Methodology, Formal Analysis, Writing – Original Draft.

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