

Asthma and Copd Patients' Satisfaction with their Inhaler Devices

Valentina Petkova^{1*}, Kalina Andreevska², Daniela Grekova² and Maria Kamusheva¹

¹Medical University of Sofia, Faculty of Pharmacy, Department of Social Pharmacy, Bulgaria

²Medical University of Plovdiv, Faculty of Pharmacy, Department of Pharmaceutical Sciences, Bulgaria

Abstract

Background: One of the main aspects of the good management of COPD and asthma is the pharmacological therapy with inhaled drugs. A variety of inhaler devices are available for COPD and asthma treatment, including pressurized metered-dose inhalers (pMDIs), dry powder inhalers (DPIs), and nebulizers. The present study is a prospective, observational study aiming to assess patient satisfaction with the available on the Bulgarian market inhalers for administration of medication for asthma and COPD, applying the Feeling of Satisfaction with Inhaler questionnaire (FSI-10).

Methods: The study was carried out between July and September 2017 with patients diagnosed with asthma and COPD who were recruited from pharmacies. The international standards for the forward and back translation approach were followed for FSI-10.

Results: The final patient group comprised 32 participants (19 female and 13 male). The highest results are given to the questions concerning the education on the inhaler and its preparation for use. While the lowest - to the question on the patient's total satisfaction with the inhaler.

Conclusion: Inhaler satisfaction is very important aspect of the management of asthma and COPD. Considering patients' preference and satisfaction with their inhaler device can help the manufacturers and can be a factor for better adherence and good treatment outcomes. Unfortunately, the results from the study show that the patients are not satisfied with their inhalers. This fact emphasizes the need of better education and application of better constructed inhalers for the patients that suffer from these chronic diseases.

Introduction

Chronic obstructive lung diseases such as asthma and COPD are widely spread and are a huge burden to health care systems worldwide [1]. One of the main elements for good management of these diseases included in the guidelines worldwide is the pharmacological therapy with inhaled drugs. Press-and-breathe Metered Dose Inhalers (MDIs) and Dry Powder Inhalers (DPIs) are the most commonly used delivery devices for administering aerosolized drugs [2,3].

Inhalers are vehicles for the effective administration of asthma and COPD medication. They allow high lung penetration of the drug and minimize systemic bioavailability, thus reducing possible adverse drug reactions [2,3]. DPIs, available since the 1970s, were developed to make inhalation simpler compared with pMDIs, without the need to coordinate inhalation and actuation [4,5]. DPIs are easier to use than pMDIs because they are breath-activated, without coordination actuation with inhalation, which can be particularly difficult for some patients, including the elderly, patients with deformities due to arthritis and children. In addition, DPIs do not contain environmentally unfriendly propellants fact that is very important from ecological point of view. DPIs are single or multiple dose inhalers that require loading before inhalation as they are breath-actuated [2].

The effectiveness of drug therapy for patients with COPD and asthma with inhalation can be influenced by many factors including age, sex and education of the patient, duration of disease, type of inhaler used, correct inhalation technique patient education on the disease and device or use of several inhalers [6].

Many elderly people and children have bad inhalation technique because of medical problems such as arthritis, weakness of hands or complicated devices [7]. Incorrect usage of inhalers is a significant problem for both asthma and COPD management because it may result in inaccurate dosage and diminished therapeutic effect, resulting in poor disease management [8-10].

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As a result, patients might receive treatment, but without proper education and training in correct inhalation technique, the therapeutic benefit expected to be less than optimal.

A variety of inhaler devices are available for bronchodilator treatment in COPD and asthma patients, including pressurized metered-dose inhalers (pMDIs), dry powder inhalers (DPIs), and nebulizers [11].

The present study is a prospective, observational study aiming to assess patient satisfaction with the available on the Bulgarian market inhalers for administration of medication for asthma and COPD, applying the FSI-10.

Methods and Materials

The study was carried out between July and September 2017 with patients with asthma and COPD who were recruited from pharmacies in Sofia, Bulgaria. All of the patients received regular treatment with inhaled corticosteroids at different doses in the last 12 months. Patients were informed of the aim of the study and provided voluntary consent to their involvement. Children were not involved in the study. Prior to completion of the questionnaire, the patients were educated by a member of the research team, who explained the aim of the study and how to fill the questionnaire.

Corresponding Author: Prof. Valentina Petkova, Medical University of Sofia, Faculty of Pharmacy, Department of Social Pharmacy, Bulgaria, 2-Dunav str. Sofia-1000, Bulgaria, tel. +359 2 9236 593, fax.+359 2 9879 874; E-mail: petkovav1972@yahoo.com

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The Feeling of Satisfaction with Inhaler (FSI-10) is a self-report instrument containing 10 questions, each with 5 possible responses on a 5-point Likert scale (very, fairly, somewhat, not very, hardly at all) scored from 5 to 1, respectively (maximum total score, 50). It assesses the level of satisfaction of patients with the inhaler and includes items on ease or difficulty of use, portability, and usability. The international standards for the forward and back translation approach were followed. For the validation step, 5 pharmacists were enrolled. The questionnaire was assessed for the following psychometric properties: test-retest reliability, construct and face validity.

Results

The final patient group comprised 32 participants (19 female and 13 male) with a mean (SD) age of 53.10 (4.17) years. During the study period, none of the patients showed changes in their clinical situation and all performed the inhalation maneuver correctly with their device at the beginning of the study. 20% from the respondents are retired. The rest were active employee. Among them there was no retirement due to illness.

The mean time to complete the questionnaire was 7.12 (3.8) minutes and no differences were encountered according to level of education, sex, or age. None of the 10 items on the questionnaire were left without response. In the whole sample, the total score on the FSI-10 for the inhalers was 18.9 (5.7). Female/male ratio was 1.46 (Table 1). The youngest participant was 37 years of age, while the oldest - 71 (Table 2).

Comparison of means for the total scores on the FSI-10 for the inhalers is shown on Table 3.

The highest results are given to the questions concerning the education on the inhaler and its preparation for use. While the lowest - to the question on the patient's total satisfaction with the inhaler (Table 3).

Discussion

We tried to assess the satisfaction of Bulgarian patients with asthma and COPD regarding different marketed inhaler devices, which they had already been using. The assessment of patient satisfaction was performed by the standard questionnaire FSI-10, which was easily understood and completed by the participants. In this study, the FSI-10 was found to be a useful instrument for assessing the degree of satisfaction of adult asthmatic and COPD patients.

The validation data from our study indicate that the FSI-10 questionnaire is comprehensible, easy to use, and has satisfactory measurement properties.

characteristics	values
Age (years), mean ± SD(min-max)	53.10 4.17 (37-71)
Female/male	1.46
Working status	
Worker	80%
Retired	20%
Mean time (completing the questionnaire)	7.12±3.8

Table 1: Demographic characteristics of the participants.

Questions	score
Q1	2.40±1.075
Q2	2.40±1.265
Q3	1.90±1.37
Q4	2.00±1.24
Q5	1.80±0.632
Q6	1.80±0.422
Q7	1.70±0.67
Q8	1.80±0.632
Q9	1.80±0.632
Q10	1.30±0.483
Total	18.9±5.7

Table 2: FSI results for inhaler application.

There are several types of devices for delivery of inhaled drugs available on the Bulgarian market but no one of them can be considered as the universal inhaler device.

Many factors that are characteristics of the inhaler such as size, maintenance, portability, and ease of use can affect treatment and patient satisfaction. This conclusion if also proved from other studies [10, 12-15].

The question with the usability of the inhaler device is of great importance as it can guarantee the effect of the therapy and it can be a factor for better compliance with the prescribed medication [12,16,17]. By assessment of patient's satisfaction with his inhaler device there can be predicted the effect from the treatment and from there the cases of ARDs from improper over dosage and extra prescribed medications will be lowered [18-20].

According to the literature, this study is the first one performed in Bulgaria, in a real-life, evaluating patient satisfaction regarding their inhaler, in a cohort of both COPD and asthma patients. Of course, as it is a pilot study and the number of the patients is very small the results are approximate. It will be good in the further study to be compared the satisfaction with different types of inhalers and to be outlined the most preferred.

The idea of assessment of patients' satisfaction with their inhaler was a good idea for prediction of the result from the treatment and it can be easily become part of the everyday pharmacy routine and pharmaceutical care. By knowing the extent of satisfaction, the pharmacist can educate his patients on the unclear points from the application of the inhaler device - handling, dosage, storage, etc.

Conclusion

Inhaler satisfaction is very important feature of the treatment of patients with asthma and COPD. Considering patients' preference and satisfaction with their inhaler device can help the manufacturers and can be a factor for better adherence and good treatment outcomes. Unfortunately, the results from the study show that the patients are not satisfied with their inhalers fact that shows the need of better education and application of better constructed inhalers for the patients that suffer from these chronic diseases.

Competing Interests

The authors declare that they have no competing interests.

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