

Evaluating Community Pharmacist Provided Short Education Program to Improve Clinical Status of Selected Asthmatic Patients

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ABSTRACT

Background: Incorrect inhaler usage is very common issue that leads to poorly managed asthma. Clinical pharmacist enhanced patient education is critical in reducing such errors. Education on inhaler technique is one area where pharmacists may significantly impact on asthma therapy and improvement in clinical features.

Aim: This study aim to evaluate the efficacy of a pharmacist-delivered education program for improving patients' inhaler technique and clinical outcomes.

Patients and Methods: This prospective cohort trial included 51 individuals with asthma, divided up between an intervention group of 26 participants who were subjected to pharmacist intervention as well as a control group of 25 participants. MDI and turbuhaler users were gathered to participate in the study from five community pharmacies in different areas of the Thi-Qar province (Nasiriyah, Suq Al-Shoyookh, and Al Eslah cities). Basic asthma control and spirometry parameters were evaluated using standardized questionnaire of asthma control test and spirometer respectively. Patients in intervention group were taught how to properly use their inhalers using a combination including demonstrations and re-demonstrations counselling with aid of advices leaflet. After one month for both groups, clinical outcomes (asthma control and spirometry) were reassessed and comparisons were made.

Results: A total of 51 patients were involved, with 35 using a turbuhaler and 16 using an MDI. At first session of assessment for all participants, a low asthma control and low median value of FEV1/FVC ratio were recording. After intervention, the median values for asthma control test and all pulmonary parameters were increased significantly (for ACT of 18.5 to 21, $p=0.000$, for PEF of 2.2 to 2.8, $p=0.001$, for FEV1 of 1.6 to 1.9, $p=0.001$, for FEV1/FVC ratio of 63 to 71.5, $p=0.002$).

Conclusion: Community pharmacist based education program applied to patients with asthma to increase awareness of patients about proper inhaler technique have positive impact in improvement of asthma control level and pulmonary functions parameters. This short education program highly applicable and should be consider as one of daily community pharmacist duties.

Keywords: Community pharmacist, asthma control test, asthmatic patients, spirometer, inhaler technique, Thi-Qar.

INTRODUCTION

Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation. It is defined by a history of respiratory symptoms such as wheezing, shortness of breath, chest tightness, and cough [1]. In Iraq, from a study published in 2018 the prevalence of adult asthma patients was 11.5 %, while was 8.9 % in children age [2]. Asthma treatment aims to create optimal symptoms control and, as a consequence, highest life's quality. Inhalers considered as a main tool for medication delivery in asthma therapy. As inhalation by inhalers enables for a smaller dose of drug to have a quicker onset of action and producing less side effects [3]. Deposit of inhaling therapies at target location is influenced by numerous factors whether relating to device like particle size of drug molecules or relating to patient like inhalation rate or procedure of using [4]. Using an inhaler is a complicated process of steps that must be carried out correctly. The effectiveness and safety of therapy can be significantly reduced if one or more steps of technique processes are not performed appropriately [5]. Many people are unable to properly utilize their inhalers, as up to 90 % of patients using pressurized metered dose inhaler MDIs and 54 % of patients using dry powder inhalers [DPI] have inhaler technique errors, according to estimations from various studies [6]. Correct inhaler technique has been shown to have a significant positive impact on medication adherence, clinical outcomes, improved patients life's quality, and medical resources [7]. Patients' health outcomes can be improved by patient education about inhaler technique [5], [6], [8]. In a limited number of physicians especially in underdeveloped country like Iraq, patients with asthma may benefit from the education offered by pharmacists, who are part of a medical team and who can be serving as first and most available point of contact for patients [5]. Pharmacist have been found to have a favorable influence on enhancing inhalation technique performance in people with asthma and also a positive impact on overall clinical status [9]. It is

remarkable that only a few of studies have particularly studied the involvement of pharmacist with treating asthmatic patients especially in poor countries like Iraq [10]. This study aimed to assess clinical outcomes represent by asthma control and spirometer parameters of asthmatic patients living at Thi-Qar governorate. Furthermore, it intended to examine the impact of pharmacist education program which applied to asthmatic patients to improve these clinical outcomes.

MATERIALS AND METHODS

Study design: The aim of this pre-post intervention research was to examine the effect of pharmacist intervention on clinical status of adults with asthma. The participants were randomly assigned to either the intervention group or the control group. After a month of follow-up, patients' baseline data and one-month post-intervention data were compared to determine the efficacy of the pharmacist intervention in enhancing pulmonary functions and assessing asthma control by asthma control test ACT. The research was conducted in five community pharmacies located in diverse parts of Thi-Qar governorate [Nasiriyah, Suq Al-Shoyoakh and Al Eslah cities]. The study conducted over four month's period of November 2021 to March 2022.

Study Population: Male and female patients aged 18 years old or more with a confirmed diagnosis of asthma using an inhaler (MDI or Turbuhaler) for their condition were included in the study. Asthmatic patients who come to pharmacy to refill their inhaler and match the inclusion criteria were directly referred to the researcher to be included in the study.

Sample size: Nonrandom sample was selected. Due to lack of the required statistics on the prevalence of asthmatic patients, sample size was not specified so the patients that matched the criteria during time of study were included. Fifty-one patients completed the whole study. Twenty-six designed as intervention group and the reminders 25 in control one.