Original Article :

Evaluation of Bronchial Asthma Control Status Among Patients with Asthma in Jazan: A Cross Sectional Study

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Abstract

Background & Aims:

Asthma is a common heterogeneous chronic respiratory disease that affects write specific design patient's quality of life. The lack of knowledge and awareness of the importance of disease control are common among asthma patients in Saudi Arabia. Asthma control status using Saudi Initiative for Asthma control test (SINA ACT), in participants who have had been diagnosed previously with asthma was investigated in Jazan region.

Methods:

A study among previously diagnosed patients with asthma was conducted from 1st of August 2019 to 30th August 2019, in Jazan shopping malls, Saudi Arabia.

Results:

one hundred and sxteen asthmatics patients above age of 12 years were interviewed in this study. Sixty-six (56%) were males and Fifty (44%) were females. The median age was 23 years (interquartile range (IQR) 20 to 35). Based on SINA ACT cut off, 51 (44%) of the asthmatics had uncontrolled asthma. Only 7 (6%) patients had visited pulmonary clinics, but that was out of the Jazan region. None of the participants had undergone pulmonary function test previously, neither had a peak expiratory flowmeter at home.

Conclusion:

The findings highlights the need of educational, practical and resources for asthmatic patients in Jazan region. In addition, it showed disappointing lack of pulmonary function testing within Jazan health institutions. And finally, it is strongly recommended that asthmatic should have educational opportunities on the asthma management and control action plan.

Keywords:

Bronchial Asthma, Asthma control test, pulmonary function test, asthma education clinic.

Background

The main objective set out in the current guidelines for asthma management [Global Initiative for Asthma (GINA)] is to achieve good disease control1. However,

despite this objective and the existence of effective therapies, asthma remains an under-treated disease[2-4]. Several multicenter studies have revealed a low percentage of patients with adequate levels of disease control as well as a lack of correlation between greater health coverage and a better level of asthma control[5-8].

The lack of recognition, by doctors and patients, of the level of asthma control, has been pointed out as one of the reasons for this disease's inadequate treatment9,10. The Asthma Control Test (ACT) questionnaire was designed in 2004 as a tool to learn about asthma control[11,12]. It is a simple self-administered questionnaire composed of five items: four objective parameters (day and night symptoms, use of rescue medication, and degree of interference of the disease with daily activities) and a measure of the patient's perception of the level of control of his/her sickness. The score is calculated as the sum of the responses for each item on a scale of 1 (worst) to 5 (best), with scores ≥ 20 having been validated as the cut-off point for a good level of control11. The ACT questionnaire has been validated in different populations, including patients in Saudi Arabia[13].

Many of the spirometric parameters used for the evaluation of asthma, such as forced expiration, forced vital capacity, or the measurement of maximum expiratory flow are not always available in primary care (PA), where many asthmatic patients are treated. In this area, therefore, the ACT questionnaire is very useful as a simple and easily interpreted tool for the supervision of asthmatic control. However, little is known about the asthma control among patients in the Jazan Region and I hypothesize that most of asthmatics patients in Jazan region are experiencing uncontrolled asthma. This study aimed to determine the asthma control status among patients with asthma in Jazan Region using the Saudi Initiative for Asthma Control Test (SINA-ACT).

Method

Study design

An epidemiological study was designed to compare the indicative score of the degree of asthma control, obtained after the administration of the ACT questionnaire by respiratory therapist among diagnosed asthma patients in the selected Jazan shopping centers. The selection of the study population was shoppers that previously diagnosed with asthma whom voluntary participated at the study booth in the shopping centers after pre-assessment of different aspects such as: history, family history, smoking history, and bronchodilators usage. All study contributors who took this

part in the study received prior training on the study procedures, protocol, and data collection.

Patients

The inclusion criteria were as follows: asthma diagnosed at least six months in advance, age over 12 years, voluntary participation, signed of informed consent, and ability to understand the study and meet its requirements. The exclusion criteria were: respiratory disease other than asthma that could interfere with the objectives of the study and inclusion in another study at the time of selection. The institutional review board approval was obtained prior undertaken the study.

Procedures

The patients who volunteered were interviewed on a one-on-one basis. Demographics and clinical data were collected, including age, gender, weight, height, level of education, smoking status, family history of asthma, parents' smoking status, regular primary care or pulmonary clinic visit, asthma control test, previous pulmonary function test (PFT) (yes/no), and usage of a home Handheld Peak Expiratory Flowmeter (PEF) (yes/no).

Statistical analysis and study assessment variables

The primary assessment variable of the study was the ACT score (Arabic translated) as a measure of asthma control in patient over 12 years old. "ACT is a validated questionnaire that consists of 5 items, where each of them is scored from 1 (worst) to 5 (best), including limitation of activity, shortness of breath, frequency of night symptoms, use of rescue medication, and rating of overall control of the disease over the past month"[14,15]. The sum of the five items represents the asthma control status as: "fully controlled" (ACT score of 25), "controlled" (ACT score of 20-24), "partially controlled" (ACT score of 16-19), and "uncontrolled" (ACT score less than 16). The analysis was carried out by comparing the percentage of patients in regard of the asthma control categories using the chi-square test. In addition, this percentage was compared to physician visit by means of a logistic regression analysis. All statistical analyses were performed using the STATA version 13 software (StataCorp LP, College Station, TX, USA).

Results

A total of 116 patients, over the age of 12 years from the three biggest shopping centers (Alrashed, Kadi, Region) were included and interviewed in the study from the period August 1 to 30, 2019. Of this number, 66 (56%) were males and 50 (44%) were females. The median age was 23 years (IQR 20 to 35); minimum age was 16 and maximum was 58 years old.

The demographic characteristics of the patients are presented in (Table 1). Based on the SINA ACT cut off, 44% (51) of the subjects had uncontrolled asthma (Figure 1). Only 6% (7) of the patients had visited pulmonary clinics, but they were situated beyond the Jazan Region. None of the participants underwent PFTs previously nor do they have PEFs at home.

Table 1. Demographic and clinical characteristics of patients with asthma in Jazan region

Age		
Median (IQR)	23 years	20 – 35 Years
Sex (n %)		
Male	66	56%
Female	50	44%
Pulmonary physician (n %)		
Yes	7	6%
No	109	94%
Previous PFT (n %)		
Yes	5	4%
No	111	96%
Handheld PEF (n %)		
Yes	5	4%
No	111	96%
Family history of asthma (n %)		
Yes	62	53%
No	54	47%
Smoking status		
Yes	24	20%
No	92	80%
Parent Smoking status		
Yes	42	36%
No	74	64%

.(Abbreviations: IQR (interquartile range), n(number), PFT (pulmonary function test), PEF (peak expiratory flow*

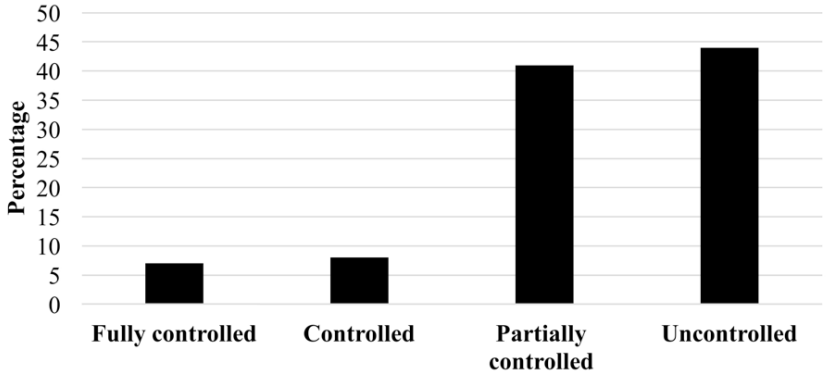


Figure 1. Asthma control test among patients with asthma in Jazan Region

Discussion

The aim of this study was to test the hypothesis that the majority of asthmatic patients in Jazan region are having uncontrolled asthma. The findings did support the hypothesis. For all the primary and secondary outcome measures; ACT score and pulmonary functions testing results; showed that asthma is a public health problem in Jazan Region. Possible explanations for the results of this study include issues related the lack of asthma education clinics in Jazan Region. The recommendations for its management continue to multiply to ensure control of this disease. Yet, despite these time-consuming, energy-intensive, and resource-intensive initiatives, a significant proportion of asthmatics continue to experience frequent symptoms that significantly impact their lives.

Majority of the patients who participated were only on short-acting bronchodilator agents with other control medications. Several studies have focused on the level of asthma control, such as a European multicenter study [11] that included 1,241 patients afflicted with asthma of different severities. Findings showed that the percentage of the patients with controlled asthma was 15% among users of inhaled corticosteroids (ICs) compared with 45% among non-users, for a total of 32% asthmatics. Similarly, in another study[16], the results showed that 72% of the patients had non-controlled asthma. In a US national study comprising 1,812 moderates to severe asthmatic patients, the majority of whom were under optimal IC therapy and long-acting bronchodilators, 45% had well-controlled while 55% had uncontrolled asthma17. Another study in 44 countries showed that 44% of asthma patients treated with a combination of long-acting IC and Beta-2 for one year had their condition fully controlled [18].

In this study, total control was reached in 6% of patients who were on ICs. The high percentages of controlled patients observed in previous studies (45%) and (44%) [17,18] are likely due to the high percentages of patients using IC in combination with Beta-2 mimetics in their long-term treatments. Numerous potential factors were identified in determining the level of asthma control, such as age, sex, and treatment strategies. It has been reported in a number of multivariate analyses that being aged less than 50 years is a factor associated with good asthma control1[1,19-20] ; whereas, on contrary, some studies show that age has no influence on the level of control of asthma[17]. In this study, younger patients' asthma conditions were more controlled than that of older patients. Regarding the sex of the controlled patients, different studies reported different results: a male predomi-

nance in one study[19] and a female predominance in two other studies [(56% vs. 43%) and (63% vs. 36%, p = 0.04)] [17,20]. In this study, the patients with totally or partially controlled asthma conditions comprised 41% women against 52% men. With regard to the basic treatment of asthma, the fixed combination of IC and Beta-2 mimetics has been shown to be an asthma control factor[19] and is the recommended treatment for patients with asthma not controlled by low doses of CI alone[21]. In this study, majority of the patients have not undertaken pulmonary clinic visits, primary care, or previous PFT testing, which could have allowed them access to better care such as asthma education and various asthma control medications. The foregoing could account for the low percentage of control in this study. Another factor that improves the control of asthma is not smoking[10-12,19]. In this study, the majority of the patients were non-smokers. Proper handling of inhaled devices also influences the level of control. In a study[22], the conditions of 41% of patients with persistent asthma were not controlled, including more than 20% who misused their IC sprays. Despite the dusty weather in Jazan Region, until today, there are no asthma education clinics in the region, which could play a major role in the care of asthma patients.

The main strength of this study is that to the best of my knowledge it is the first epidemiological study investigating asthma control in Jazan Region. The study was conducted in the middle of summer, which is usually the hottest and dustiest month, a period when patients and physicians should be focused on the control of asthma symptoms. The limitations of this study were the small sample size, lack of spirometry testing to assess asthma severity, and patient adherence, which is a major factor in asthma control.

Clinical implication and Conclusion

Despite all of the efforts exerted, whether through GINA or SINA recommendations or by medical practitioners, and despite the existence of effective therapies against asthma, a significant number of asthma patients whose conditions remain insufficiently controlled or not controlled in Jazan Region. The hope of overcoming this disease lies in the education of the asthmatic, the establishment of asthma clinics that conduct pulmonary function testing and provide personal action plans for the self-management of this illness, and the improvement of doctoral dialogue for the purpose of a more precise evaluation of the level of asthma control. Further large scale studies might validate the findings of this study and increase the understanding the status of asthma control in Jazan region.

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AH was involved in the study design, performed the majority of data processing and analysis and drafted the article. AH devised the original idea and contributed to the design of the study and analysis of the data. Naif A Alhazmi, Esmail M Alhazmi, Meshal N Debsh, Alwaleed A Yahya, and Ahmed Y Siddiq contributed to the initial stages of data organization. AH were involved in drafting and revising the article and approved the article before submission. AH is the guarantor.

Declaration of Conflicting Interests

The authors declares that there is no financial conflict of interest.

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