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Short Report

Assessment of asthma control using the asthma control test at a tertiary care centre in Karachi, Pakistan

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Abstract

The aim of our study was to assess asthma control among asthmatics at a tertiary care setting in Karachi using ACT questionnaire. The ACT questionnaire was filled by known asthmatics in January 2007. A total of 150 questionnaires were filled of which, 61 (40%) were males and 89 (60%) females. Mean ACT score was 17.71 +/- 4.41. Association between sex and asthma control was not statistically significant. Significant association was seen with asthma control and Ipratropium bromide inhaler. Asthma control among patients at a tertiary care centre is moderate. ACT can be used to follow patients in the hospital.

Introduction

The global burden of asthma has reached an alarming level to worry physicians as well as health policy makers around the world. More than 300 million people worldwide suffer from this chronic potentially disabling disease and this figure is projected to rise by 50% every decade.[1] Figures from other South Asian countries have shown to be as high as 29.5%[2] and Pakistan may not be very different. Even though The International Study of Asthma and Allergies in Childhood (ISAAC) study mentioned a prevalence of 8% in Pakistani paediatric population, under reporting and lack of sound epidemiological data may mask the reality.[3]

Previously, the Global Initiative for Asthma (GINA) guidelines classified severity of asthma by dividing into subcategories based on the level of symptoms and airflow limitation and its variability.[4,5] However, it must be realized that asthma severity involves both the severity of the underlying disease and its responsiveness to treatment. Hence, according to the updated GINA guidelines, assessing the severity alone is no longer recommended but emphasis has shifted to periodic assessment of asthma control.[6]

Literature highlights several tools currently in use to specifically assess asthma control, on the basis of patients' symptoms, rescue medication use and limitation of daily activities in adults and children.[7,8] Most commonly utilized in clinical settings are the asthma control questionnaire (ACQ), the asthma therapy assessment questionnaire (ATAQ) and the asthma control test (ACT).[7]

Of all the control assessment tools, ACT questionnaire is short, simple, comprising of 5 patient-based questions and more importantly cost effective as it does not encompass pulmonary function tests.[9] Hence it is a promising assessment tool for our clinical setting. The ACT has been proven reliable, valid, and responsive to changes in asthma control over time in patients new to the care of asthma specialists.[10] Its results have also been seen to be in concordance with specialists' assessments based on spirometry.[9,10]

To our knowledge no study in the medical literature exists that assesses baseline control of asthma in Pakistan. Hence, the aim of our study was to assess asthma control among asthmatics at a tertiary care setting in Karachi using Asthma control test (ACT) questionnaire.

Patients, Method and Results

The Asthma Control Test (ACT) questionnaire was filled by 150 patients who were known asthmatics. The study was conducted at a tertiary care hospital during the

Asthma Control Test™

1. In the past 4 weeks, how much of the time did your asthma keep you from getting as much done at work, school or at home?

All of the time	Most of the time	Some of the time	A little of the time	None of the time
o	o	o	o	o
1	2	3	4	5

2. During the past 4 weeks, how often have you had shortness of breath?

More than Once a day	Once a day	3 to 6 times a week	Once or twice a week	Not at all
o	o	o	o	o
1	2	3	4	5

3. During the past 4 weeks, how often did your asthma symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?

4 or more nights a week	2 to 3 nights a week	Once a week	Once or twice	Not at all
o	o	o	o	o
1	2	3	4	5

4. During the past 4 weeks, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?

3 or more times per day	1 or 2 times per day	2 or 3 times per week	Once a week or less	Not at all
o	o	o	o	o
1	2	3	4	5

5. How would you rate your asthma control during the past 4 weeks?

Not Controlled at All	Poorly Controlled	Somewhat Controlled	Well Controlled	Completely Controlled
o	o	o	o	o
1	2	3	4	5

Figure: Asthma Control Test.

month of January 2007. All individuals presenting to the clinic with a previously established diagnosis of asthma based on physicians' notes, pulmonary function tests and reversibility of effect and were 12 years and above were included. These participants were enrolled consecutively as they presented to the out-patient clinic. Patients with acute exacerbation or those below 12 years of age were excluded. The questionnaire is shown in the figure.

The ACT questionnaires were filled by patients with the help of a research medical officer (RMO). Written informed consent was taken before administering the questionnaire. The study was approved by the ethical committee of Department of Medicine, AKUH.

SPSS 15.0 (copyright © SPSS Inc., 1989-2007) was used for statistical analysis. Results were expressed as mean ± standard deviation for all continuous variables and frequency and percentages for categorical data. Chi square was applied to assess association between different variables. P-value less than 0.05 was considered as significant.

A total of 150 questionnaires were filled regarding control of Asthma from known asthmatics. Out of 150 participants 61 (40%) were males and 89 (60%) females. Out of all participants, 62 (41%) had presented for the first time with a pre-established diagnosis of Asthma whereas 89 (59%) patients were followed in the same clinic for management of their disease.

Mean score on the ACT was found to be 17.71 +/- 4.41 with mean score for males of 18.23+/-4.68 and for females 17.35 +/- 4.2. ACT questionnaire categorizes the asthma control into 3 categories depending upon scores, that is, scores of <19, 20-24 and 25. In our study population, participants falling in these categories were 93 (63%), 47 (31%) and 10 (6.7%) respectively. Association between sex and asthma control was determined and was not statistically significant ($p < 0.25$).

While objectively assessing asthma control, antiasthmatic medications used by participants were also taken into account to determine their baseline control with any particular medication and to direct the management. Antiasthmatics used by the participants were calculated and were found to be Salbutamol 93 (62.0%), Ipratropium Bromide 20 (13.3%), Steroids 59 (39.3%), Montelukast 11 (7.3%), combination of beclomethasone +salbutamol (ventide) 3 (2.0%), theophylline 11 (7.3%) and antihistamines 6 (4.0%).

Associations between asthma control and antiasthmatic medications were determined (Table). Significant association was seen with asthma control and Ipratropium bromide inhaler ($p <0.01$).

Table: Association between baseline control of Asthma (by ACT scoring) with different antasthmatics medications.

Total Scores	Yes (%)	No (%)	p-value
	Ventolin		
1-19	59 (39.3)	34 (22.7)	
20-24	27 (18.0)	20 (13.3)	0.68
25	7 (4.7)	3 (2.0)	
	Ipratropium Bromide		
<19	19 (12.7)	74 (49.3)	
20-24	1(0.7)	46 (30.7)	<0.01
25	0(0.0)	10 (6.7)	
	Steroids		
<19	36 (24.0)	57 (38.0)	
20-24	18 (12.0)	29 (19.3)	0.77
25	5 (3.3)	5 (3.3)	
	Montelukast		
<19	10 (6.7)	83 (55.3)	
20-24	1 (0.7)	46 (30.7)	0.12
25	0 (0.0)	10 (6.7)	
	(Seretide) Beclomethasone + Salbutamol		
<19	2 (1.3)	91 (60.7)	
20-24	1 (0.7)	46 (30.7)	0.90
25	0 (0.0)	10 (6.7)	
	Theophylline		
<19	10 (6.7)	83 (55.3)	
20-24	1 (0.7)	46 (30.7)	0.12
25	0 (0.0)	10 (6.7)	
	Antihistamines		
<19	3 (2.0)	90(60.0)	
20-24	2 (1.3)	45 (30.0)	0.58
25	1 (0.7)	9 (6.0)	
	(Ventide) fluticasone + salmeterol		
<19	35 (23.3)	58 (38.7)	
20-24	12 (8.0)	35 (23.3)	0.24
25	2 (1.3)	8 (5.3)	

Conclusion

Asthma control among patients at a tertiary care centre is not adequate. Asthma Control Test Questionnaire can be used to follow patients in the hospital. Validity and Reliability studies need to be conducted on a wider scale as with this small sample, asthma control could not be correlated with the recommended therapy for Asthma.

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