

Knowledge about inhaler use among the chronic asthma patients in selected hospitals

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Abstract

This cross sectional descriptive study was conducted among the chronic asthma patients attending three Institutes of Dhaka city namely National Asthma Center, The National Institute of Diseases of Chest and Hospital (NIDCH), Mohakhali, and Dhaka Medical College Hospital to assess the level of knowledge regarding inhaler use. Convenient sampling was adopted. Data were collected using one semi-structured questionnaire through face-to-face interview. The patients were aged from 18 to 75 years with mean age being 40.68 years and sd \pm 11.659 years. The mean monthly income of the respondents found was 8278.52 taka with standard deviation \pm 3523.315 taka. Mean duration of bronchial asthma was 9.44 years with sd \pm 4.862 years. Out of the total 298 respondents 103(35.8%) possessed “excellent knowledge” on inhalers. Ninety one (31.6%) had “adequate knowledge”, sixty nine (24.0%) had “poor knowledge” and thirty five (8.7%) respondents were found having “no knowledge” about inhalers. Males were seen having better knowledge than the females ($\chi^2=66.582$, df=3, p<0.001). The respondents receiving treatment from the indoor possessed better knowledge than those from the outdoors (p<0.001). Level of Knowledge was also found to be associated with the educational status of the respondents. Respondents with higher education possessed more than the respondents with lower education (p<0.001). Though most of the physicians now prescribe inhalers, but many of them do not explain the proper use of inhaler. This may be corrected through training and motivation of physicians at Medical Colleges and Hospitals and during various medical conferences and other programs. To reduce the extent of suffering and economic burden of asthma patients and their families, active education program for the patients and training program for the health care providers, regarding “inhaler use technique” demands early consideration.

Introduction

Bronchial asthma is an ancient disease and still an important Public Health problem throughout the world. It is now one of the world's most common long term conditions. It is a chronic inflammatory disorder causing hyper-responsiveness of airways to certain stimuli resulting in recurrent variable airflow limitation, at least partly reversible, presenting as wheezing, breathlessness, chest tightness and coughing¹. It is characterized functionally by the presence of airflow obstruction which is variable over short periods of time or is reversible with treatment².

It is estimated that around 300 million people in the world currently have asthma and it accounts for about 1 in every 250 deaths worldwide. Many of these deaths are preventable by proper and timely scientific management. There may be an additional burden of 100 million persons with asthma by

2025. Over 18 million working days are lost due to asthma each year³.

According to National Asthma Prevalence Study (NAPS) about seven million people are suffering from current asthma (i.e. three episodes of asthma attacks in last 12 months) in Bangladesh⁴. Since asthma is a chronic respiratory disease, it can be and should be managed at home up to a certain level. If home management plan is applied intelligently and skillfully, most of the asthma patients can lead a symptom free normal life, avoid hospitalization thereby cutting down the financial expenditure significantly. All patients of asthma, except those with acute exacerbation, should be treated at home.

Education, caution and medication are the three fundamental components of an effective management plan for asthma. Patient education regarding asthma is so important that if they are

educated properly, then 73% of hospital admission from acute attack of asthma can be reduced and 80% of death from asthma can be avoided. Asthma medications help reduce underlying inflammation in the airways and relieve or prevent symptomatic airway narrowing. Control of inflammation should lead to reduction in airway sensitivity and help prevent airway obstruction⁵. Discovery of Metered Dose Inhaler (MDI) in 1956 brought out a revolution in the management of asthma. The first inhaled corticosteroid in 1972 was another step ahead for the control of bronchial asthma⁶.

A study in Bangladesh shows that only 17 per cent asthma patients could demonstrate the technique of inhaler use properly⁷. Another study shows that 69.6% of bronchial asthma patients are lacking the knowledge of correct use of inhaler⁸.

Asthma cannot be cured but attacks of asthma and associated complications can be prevented by proper management plan. Current data regarding knowledge and practice of asthma patients in controlling and preventing the disease is important for planning both health education activities and management of asthma. So this study was undertaken to collect current data on the knowledge and practices of inhaler use among asthma patients, attending the only national level asthma center, which may help planning of scientific and cost-effective management of asthma in the country, and thereby alleviate sufferings of thousands of asthma patients in Bangladesh.

Materials and Methods

The study was conducted at three institutes of Dhaka City namely National Asthma Center, The National Institute of Diseases of Chest and Hospital (NIDCH), Mohakhali, and Dhaka Medical College Hospital. Chronic Asthma patients attending those three Institutes were considered as the study population. Sample size was 298. Convenient sampling technique was adopted. After taking verbal consent from the respondents, data were collected through face-to-face interview using the pre-tested semi structured questionnaire.

Results

Study revealed that the mean age of the respondents is 40.68 years. The mean monthly income of the respondents was 8278.52 taka with standard deviation ± 3523.315 taka. Mean duration of bronchial asthma was found 9.44 years with $sd \pm 4.862$ years. Most of the respondents 98 (32.9%) were illiterate; 89 (29.9%) were having secondary level of education, 64 (21.5%) had primary level of education and 47 (15.8%) had higher secondary level of education (Table-I).

Table 1: Socio-demographic characteristics of the respondents

Characteristics	Frequency	Percent	statistics
Age (years)			
< 20	8	2.7	Mean: 40.68 years; SD: ± 11.659 years
20-29	42	14.1	
30-39	101	33.9	
40-49	74	24.8	
50-59	58	19.5	
60 and above	15	5.0	
Sex			
Male	231	78	
Female	67	22	
Education			
Illiterate	98	32.8	
Primary	64	21.5	
Secondary	89	29.9	
Higher secondary	47	15.8	
Profession			
Farmer	49	16.4	
Laborer	54	18.1	
Small Business	40	13.4	
Govt. Job	51	17.1	
Private Job	34	11.4	
Student	19	6.4	
House wife	51	17.1	
Monthly Income (Taka)			
<5000	31	10.4	Mean: 8280Taka; SD: 3520Taka
5000-10000	162	54.4	
10000-15000	73	24.5	
15000+	32	10.7	

Maximum 106(35.6%) respondents were suffering from asthma for 5-10 years. Ninety seven (32.6%) were suffering for 10-15 years. Eight (2.7%) said that they are suffering from asthma for more than 20 years. Mean duration of bronchial asthma found was 9.44 years with $SD \pm 4.862$ years (Table II).

Table II: Distribution of the respondents by duration of asthma

Duration of Asthma (years)	Frequency	Percent
<5 Years	36	12.1
5-10 years	106	35.6
10-15 years	97	32.6
15-20 years	51	17.1
20+ years	8	2.7
Total	298	100.0

Mean: 9.4 years; SD: ± 4.9 years

A total of 150 (50.3%) respondents did not say that they don't have any family history of asthma. The rest had family history and of them 80 (26.8% of total) told that their father had, 60 told that their mother and 8 told that other members of their family had asthma (Table III).

Table III: Distribution of the respondents by family history of asthma

Family History of Asthma	Frequency	Percent
No	150	50.3
Father	80	26.8
Mother	60	20.1
Others	8	2.7
Total	298	100.0

Regarding inhaler use by the respondents as per their gender, study revealed that out of the total 298 respondents 103 (35.8%) possessed “excellent knowledge” on inhaler use; among them 98 were male and 5 were female. Ninety one (31.6%) had “adequate knowledge”, 69 (24.0%) had “poor knowledge” and 35 (8.7%) respondents were found having “no knowledge” about inhalers use. Among the respondents with “no knowledge” 6 were male and 35 were female. Level of knowledge was found to be associated with gender of the respondents, the males were seen having better knowledge than the females ($\chi^2=66.582$, $df=3$, $p<0.001$) (Table-IV).

As per table V study revealed that respondents’ level of knowledge regarding inhaler use by place of treatment received by the respondent. Out of the total 298 patients 140 (47.0%) were admitted in the hospitals and got treatment from the indoor. Of

these 140 patients 72 (51.4%) had excellent knowledge, 48 (34.3%) had adequate knowledge, 11 (7.9%) had poor knowledge and 9 (6.4%) had no knowledge about inhaler use. On the other hand 158 (53.0%) got treatment from the outdoors and of them 31 (19.6%) had excellent knowledge, 43 (27.2%) had adequate knowledge, 58 (36.7%) had poor knowledge and 26 (16.5%) had no knowledge about inhaler use. Level of knowledge was found to be associated with place of treatment of the respondents ($p<0.001$) (Table-V).

Table VI show that the respondents’ level of knowledge regarding inhaler use by their educational status. Level of knowledge was found to be associated with the educational status of the respondents. Respondents with higher education possessed more than the respondents with lower education ($p<0.001$) (Table-VI).

Table IV: Respondents’ level of knowledge about inhaler use by gender

Sex of the Respondents	Respondents’ Level of Knowledge				Total
	Excellent Knowledge	Adequate Knowledge	Poor Knowledge	No Knowledge	
Male	98 (42.4%)	76 (32.9%)	51 (22.1%)	6 (2.6%)	231 (100.0%)
Female	5 (8.8%)	15 (26.3%)	18 (31.6%)	29 (33.3%)	67 (100.0%)
Total	103 (35.8%)	91 (31.6%)	69 (24.0%)	35 (8.7%)	298 (100.0%)

$\chi^2=66.582$, $df=3$, $p<0.001$

Table V: Respondents’ level of knowledge about inhaler use by place of treatment received (indoor and outdoor)

Place of treatment	Knowledge level				Total
	Excellent Knowledge	Adequate Knowledge	Poor Knowledge	No Knowledge	
Indoor	72 (51.4%)	48 (34.3%)	11 (7.9%)	9 (6.4%)	140 (100%)
outdoor	31 (19.6%)	43 (27.2%)	58 (36.7%)	26 (16.5%)	158 (100%)
Total	103 (34.6%)	91 (30.5%)	69 (23.2%)	35 (11.7%)	298 (100%)

$\chi^2=55.984$, $df=3$, $p<0.001$

Table VI: Respondents’ level of knowledge about inhaler by educational status

Educational status of respondents	Knowledge level				Total
	Excellent Knowledge	Adequate Knowledge	Poor Knowledge	No Knowledge	
Illiterate	9 (9.2%)	42 (42.9%)	29 (29.6%)	18 (18.4%)	98 (100%)
Primary	23 (35.9%)	14 (21.9%)	20 (31.3%)	7 (10.9%)	64 (100%)
Secondary	42 (47.2%)	27 (30.3%)	15 (16.9%)	5 (5.6%)	89 (100%)
Higher Secondary	29 (61.7%)	8 (17.0%)	5 (10.6%)	5 (10.6%)	47 (100%)
Total	103 (34.6%)	91 (30.5%)	69 (23.2%)	35 (11.7%)	298 (100%)

$\chi^2= 56.535$, $df = 9$, $p<0.001$

Discussion

Patients with asthma all over the world have been shown to have poor inhaler use technique, an important cause of poor asthma control. The problem is common in both adults and children, affecting as many as 48 to 95% patients throughout the world. For this reason, international guidelines for asthma management emphasize the importance

of demonstrating the correct inhaler technique at initial diagnosis and correcting patient performance at each follow-up visit⁹.

Out of 298 patients 150(50.3%) respondents did not say of having any family history of asthma, 26.8% respondents told that their father had asthma, 20.1% told that their mother had asthma and 2.7% told that other members of their family had asthma.

Rahman MS^{4,9} showed regarding the family history 54.6% had a history of asthma among their mothers (20.4%), fathers (18.5%) and other near relatives (15.7%).

The respondents were asked on defining asthma. It was answered correctly by 72% of them. Akhter Munira⁸ found 77% defining asthma correctly and Rahman MS¹⁰ found it 67%. So this study is consistent with previous studies.

Inhaler therapy is now the preferred mode of delivery of many drugs used in the treatment of asthma and Chronic Obstructive pulmonary Diseases (COPD) (e.g. β_2 agonists and steroids). The major advantage of inhalation therapy is the direct delivery of medications in much smaller effective doses compared to systemic routes, thus reducing side-effects. The important limitation of inhaler devices is that they are more difficult to use and less convenient than oral medicine. Each inhaler device has its own specific sequence of steps for optimal drug delivery and it is therefore necessary to give careful and correct instruction to patients. Metered Dose Inhaler (MDI), the most commonly used device, requires the patient to coordinate inhalation with action of the device (actuation/activation), which is usually difficult for many patients.

Out of the total 298 respondents 103(35.8%) possessed "excellent knowledge" on inhalers; among them 98 were male and 5 were female. Ninety one (31.6%) had "adequate knowledge", 69(24.0%) had "poor knowledge" and 35(8.7%) respondents were found having "no knowledge" about inhalers. Among the respondents with "no knowledge" 6 were male and 35 were female. Level of knowledge was found to be associated with sex of the respondents, the males were seen having better knowledge than the females ($\chi^2 = 66.582$, $df=3$, $p<0.001$). As a whole literacy rate in our country is low. Between male and female literacy rate is lower in female than male due to socio cultural & economic factor of Bangladesh. So the correlation is logical and persistent.

Out of the total 298 patients 140 (47.0%) were admitted in the hospitals and got treatment from the indoor and 158 (53.0%) got treatment from the outdoors. Level of knowledge was found to be associated with place of treatment of the respondents ($p<0.001$) (Table V).

Respondents' level of knowledge was found to be associated with their educational status. Respondents with higher education possessed more than the respondents with lower education ($p<0.001$) (Table VI). According to Nelson

Mandela "Education is most powerful weapon which can use to change the world." So it is very much rational that the higher educated persons possess more knowledge than the respondents who have lower education.

Conclusion: This study was conducted to assess the knowledge of the inhaler users regarding inhalers and correct method of its use. Chronic asthma patients who use inhalers possess diverse ideas on inhalers and the method of use. Though most of the physicians now prescribe inhalers, but many of them do not explain the proper use of inhaler. Attitude can be improved through training and motivation of physicians at Medical Colleges and Hospitals and during various medical conferences and other programs. To reduce the extent of suffering and economic burden of asthma patients and their families, active education program for the patients and training program for the health care providers, regarding "Inhaler use technique" demands early consideration.

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