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SHORT COMMUNICATION

Pilot testing of a pharmacist led care program for asthma patients in Saudi Arabia



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Abstract This study aimed at evaluating the usefulness of a structured patient counseling program on clinical outcomes of asthma patients in Saudi Arabia. This cross sectional study enrolled 10 asthma patients and all were evaluated for their baseline knowledge on asthma, quality of life, compliance, patient satisfaction and drug related problems among randomly selected 5 (of the total 10) patients. The median (IQR) age of the patients was 46 (33.5–56.2) years. The baseline knowledge scores was 9 (8–11), the maximum possible scores to be 21. Cronbach alpha of the KQ was 0.65. The overall total median (IQR) compliance (Morisky) score was 4 (3–5), the maximum possible score was 5. The patient satisfaction median (IQR) score was 35.5 (32–46.25), the maximum possible score was 70. Of the total patients 3 (30%) had a history of allergy. There were total 18 allergens observed in these patients. There has been no drug–drug or drug–food interactions observed between among the prescribed drugs of the patients. Altogether 2 patients reported a total of 2 ADRs. The knowledge of the asthma patients was found to be poor. Missing the dose was the most commonly encountered drug taking behavior. The compliance was found to be good and the patient satisfaction was average.

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1. Introduction

Asthma is a chronic condition characterized by reversible airway obstruction, airway inflammation and increased airway responsiveness to a variety of stimuli. In the recent past Saudi Arabia has witnessed an increase in asthma (Al Frayh et al., 2001). There is also a known link between genetic natures of individuals with asthma in the country (Bener et al., 1992). Asthma being a chronic disease requiring special care often needs lifelong medicines and care that even go beyond the institutional care. In addition to drug therapy, several non-pharmacological measures like smoking cessation, avoidance

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of allergens etc are very important for better disease control in asthma patients. Similarly, the improper use of inhalation devices is known to be one of the causes of therapeutic failure (Newman et al., 1991). Similarly, self monitoring of treatment is essential in asthma so that the patient himself/herself becomes an active partner of self-care. Pharmacist being an important healthcare professional is expected to play an important role in chronic disease management (Lewis et al., 1997) as documented by various researchers worldwide (Cordina et al., 2001; De Tullio and Corson, 1987; Bynum et al., 2001; Odegard et al., 2004; Weinberger et al., 2002).

In Saudi Arabia, the concept of pharmaceutical care is new and pharmacists are yet to contribute substantially in providing patient counseling and education. This preliminary study was conducted to evaluate the knowledge and quality of life, identify the types of drug therapy related problems, compliance and satisfaction of asthma patients. Pharmacist can be an important member of a healthcare team and can contribute for the better therapeutic outcome management and decrease the number of drug related problems in asthma patients (Narhi et al., 2000).

2. Methodology

A cross sectional study was conducted among 10 asthma patients attending the chest clinic at the King Saud hospital in Onaizah, Saudi Arabia during May–June 2013. These study subjects were selected among the asthma patients attending the chest clinic and after filling a written informed consent. Upon enrollment the demographic data were obtained using patient profile form, the baseline knowledge on asthma using knowledge questionnaire, the baseline Quality of life (using AQLQ questionnaire, adopted with permission from authors), and patient compliance, satisfaction and drug taking behavior were evaluated. The compliance was evaluated using a Morisky scale and the patient satisfaction on the pharmacist services using a satisfaction questionnaire. Similarly the drug related problems encountered by 5 randomly selected patients were also assessed. All patient data were entered in SPSS program and appropriate analysis has been made as per the study. Descriptive statistics was performed for the demographic variables and scores. The entire research process has been approved by the Al Qassim research ethics committee.

3. Results

3.1. Demography distribution of the patients ($n = 10$)

Altogether 10 patients with median (IQR) age of 46 (33.5–56.2) were enrolled in the study. A higher percentage of the respondents were in the age group 30–60 years with an equal proportion (50% each) of gender distribution. The demographic details of the study subjects are tabulated in Table 1.

3.1.1. Baseline knowledge evaluation of the respondents ($n = 10$)

Of the total 21 questions, the questions Q10 (Which factor can worsen asthma condition?) and Q 19 (Can the same medicines be shared by two or more asthma patients?) are answered by all the respondents. Similarly 90% of the respondents

Table 1 Demographic distribution of the patients ($n = 10$).

Parameters	Variables	n	%
Age median (IQR) age = 46 (33.5–56.2) years	Less than 30	0	0
	30–60	9	90
	More than 60	1	10
Gender	Male	5	50
	Female	5	50
Educational level	Primary	2	20
	Secondary	5	50
	Intermediate	0	0
	University	3	30
Employment status	Government	8	80
	Others	2	20
Smoking	Yes	3	30
	No	7	70
History of allergy	Yes	3	30
	No	7	70
Duration of asthma	Less than 5 years	5	50
	5–10 years	3	30
	More than 10 years	2	20

answered Q8 (Can asthma spread from one individual to other by physical contact?) and Q21 (What are the strategies that can be followed by asthma patients so as to have a healthy life?) correctly. The baseline evaluation of knowledge scores revealed the total score to be 9 (8–11), and the maximum possible score to be 21. The median (IQR) total scores of the individual responses are listed in Table 2.

3.1.2. Baseline evaluation of the compliance of the respondents ($n = 10$)

The overall total median (IQR) Morisky score was 4 (3–5), and the maximum possible score was 5. The scores of the individual responses are tabulated in Table 3.

3.1.3. Baseline evaluation of the patient satisfaction ($n = 10$)

The patient satisfaction on the care given by the pharmacist was analyzed and is tabulated in Table 4. The total median (IQR) score was 35.5 (32–46.25), and the maximum possible score was 70.

3.1.4. Baseline quality of life analysis ($n = 10$)

The QoL of the study subjects at baseline was studied and the results are displayed in Table 5.

3.1.4.1. Analysis of drug related problems ($n = 5$). Of the total 5 patients, 3 (60%) had a history of allergy. There were a total of 18 allergens observed in these 5 patients. There were a total of 11 drugs prescribed to these 5 patients that include Ammonium chloride (expectorant), budesonide (inhaled corticosteroid), cefuroxime (Cephalosporin antibiotic), dextromethorphan (Expectorant), diphenhydramine (Antihistaminic), fluticasone (Inhaled corticosteroid), formoterol [bronchodilator (beta agonist)], paracetamol (antipyretic), and salbutamol [(bronchodilator) (beta agonist)]. There has been no drug–drug or drug–food interactions observed among the prescribed drugs of the patients. Altogether 2 (40%) patients reported ADRs. One of them reported allergy and

Table 2 Baseline knowledge scores of the respondents ($n = 10$).

Responses	Median (IQR)
1. Which part of the body is affected in an asthma patient?	0.5 (0–1)
2. Mention any one drug that should not be used by asthma patients	0 (0–0)
3. Mention any one advantage of using a Meter dose inhaler	0 (0–1)
4. Which is the first step in using a meter dose inhaler?	1 (0–1)
5. While taking asthma medicines through an inhaler how long the patient should hold the breath?	0 (0–0)
6. How long the patient should wait between two consecutive puffs?	0 (0–0)
7. Do you think asthma is completely curable?	0 (0–0.25)
8. Can asthma spread from one individual to other by physical contact?	1 (1–1)
9. Which one of the asthma medicine is given by inhalation route?	0(0–0)
10. Which factor can worsen asthma condition?	1 (1–1)
11. Can an asthma patient take painkiller without doctor/pharmacist advice?	1 (1–1)
12. Do you think the asthma medications are addictive?	1 (0–1)
13. Do you think using spacer is beneficial to patients?	0.5 (0–1)
14. Do you know what is to be done if you miss a dose of the medication?	0.5 (0–1)
15. Do you know when asthma patients should stop taking their medicines?	0.5 (0–1)
16. How does one know the amount of medicine present inside a meter dose inhaler?	0 (0–0)
17. One of the following is a side effect caused by inhalers containing corticosteroids	0 (0–0)
18. Mention one important precaution that needs to be taken by asthma patients so as to prevent the occurrence of oral (topical) side effects with corticosteroids?	0 (0–0)
19. Can the same medicines be shared by two or more asthma patients?	1(1–1)
20. Mr. A is taking fluticasone inhaler for past 3 years for asthma control. He was traveling to a remote place for holidays and forgot to take his medicine	
a. Can he stop taking his inhaler medicine?	1 (0.75–1)
b. What happens if he stops taking it suddenly?	1 (0.5–1)
c. On normal conditions what precaution one should take while stopping Fluticasone inhaler after longtime use?	0 (0–0)
21. What are the strategies that can be followed by asthma patients so as to have a healthy life?	1 (1–1)

Cronbach alpha of the KQ was 0.65.

Table 3 Baseline evaluation of the compliance of the respondents ($n = 10$) [Morisky].

Responses	Median (IQR) score
1. Do you sometimes forget to take your medicine?	1 (0–1)
2. People sometimes miss taking their medicines for reasons other than forgetting. Thinking over the past 2 weeks, were there any days when you did not take your medicine?	1 (0.5–1)
3. Have you ever cut back or stopped taking your medicine without telling your doctor because you felt worse when you took it?	0 (0–0.5)
4. When you travel or leave home, do you sometimes forget to bring along your medicine?	0 (0–1)
5. Did you take all your medicines yesterday?	0 (0–0.5)
6. When you feel like your symptoms are under control, do you sometimes stop taking your medicine?	1 (0–1)
7. Taking medicine every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan?	1 (0.5–1)
8. How often do you have difficulty in remembering to take all your medicines?	0 (0–1)

the other gastritis. However the exact cause has not been known. The Naranjo score became 6.

3.1.4.2. Use of other (concurrent) medications ($n = 5$). Among the 5, none of them had taken OTC medications and 4 (80%) had taken herbal medicines and 2 (40%) experienced ADRs.

None of them obtained treatment from other hospitals during the time of enrollment in the study.

3.1.4.3. Drug taking behavior and problems ($n = 5$). Various drug taking behaviors of the study subjects were analyzed. It was important to note that 5 (100%) of the patients had missed

Table 4 Baseline evaluation of the patient satisfaction of the study subjects ($n = 10$).

Responses	Median (IQR) score
1. Contents of the counseling process	2 (1.75–4.25)
2. Information leaflets provided by the Pharmacist	2.5 (1–4.25)
3. Information regarding the medicines provided by the Pharmacist	4 (1.75–4.25)
4. Counseling aids used by the Pharmacist	2.5 (1–4)
7. Medication calendar given by the Pharmacist	1 (1–4)
8. Information regarding the use of special devices	2.5 (1.75–4.25)
9. The verbal communication skills of the Pharmacist	4 (3.75–5)
10. The non-verbal communication skills of the Pharmacist	3.5 (3.75–4.25)
11. Usefulness of the counseling provided by the Pharmacist	3.5 (1.75–4.25)
12. Time management by the Pharmacist	3.5 (1–5)
13. Information regarding storage of medicines	1 (1–4)
14. Information regarding management of an emergency asthma attack.	1 (1–3)

Cronbach alpha of the SQ was 0.625.

Table 5 Baseline evaluation of the QoL of the study subjects.

Responses	Median (IQR) score
1	4 (3.5–5.0)
2	6 (4.75–6)
3	5.5 (4.75–6.25)
4	5 (4–6)
5	4.5 (3.75–6)
6	3.5 (3–5.25)
7	4 (3–5)
8	3 (2.75–4)
9	2.5 (2–4)
10	3 (2–4.25)
11	3 (2.75–5.25)
12	3 (2–4)
13	5 (3.75–6)
14	3.5 (2–4)
15	4 (3–5)
16	3 (2–3.25)
17	3 (2–3)
18	3.5 (2.75–4.25)
19	3 (2.75–4)
20	5 (4–6.25)
21	4 (3–5.5)
22	3.5 (3–4)
23	3 (2–4)
24	4.5 (4–5.25)
25	3.5 (3–5.25)
26	3 (2–3.25)
27	5 (4.5–6)
28	3 (2–4)
29	4.5 (4–5.25)
30	5 (4–6)
31	4.5 (3–5.25)
32	5 (4.75–6)

the dose some time during treatment. Out of 5 patients 3 (60%) have the problem of taking the drug unnecessarily, and 2 (40%) have irregular clinical appointment. None of the patient has the problem of using contraindicated drug, drug interaction and wrong drug.

3.1.4.4. List of medication counseling problems ($n = 5$). A total of 5 patients had their disease not under control and 2 (40%) experienced ADRs. More details regarding medication counseling of subjects are as shown in [Table 6](#).

Table 6 Medication counseling problems.

Problems	Number of patients	Percentage
Disease not under control	5	100
Experienced side effects/ADRs	2	40
Inadequate knowledge	4	80
Medication taking error	2	40
Compliance	1	20
Smoking	0	

4. Discussion

The findings of the pilot study were instrumental in validating the methodology and the study tools and also suggesting modifications. Some of the interesting findings of the pilot study were many of the patients were sensitive to or affected by dust and perfume. Similarly most of the patients did not know the medication name suggesting the need for counseling. Many of the asthma patients also did not have the habit of using face mask to protect from allergen. It was also important to note that most of the study subjects avoid going to mosque due to perfume used in mosque. The experience had also shown that the patients in general preferred counseling to be provided in a separate place and all the patients like to discuss regarding his/her disease and drugs. It was also found that most of the patients did not continue using their medication regularly.

It was also noticed that 60% of patients had history of allergy. The common allergens are dust and perfume. Among the patients, a total of 11 drugs were prescribed. These drugs included inhale corticosteroids, expectorants, antibiotics etc. There has been no drug–drug or drug–food interactions observed among the prescribed drugs of the patients. Altogether 2 patients reported ADRs. One of them reported allergy and the other gastritis. However the exact cause has not been known. Among the 5 patients, none of them had taken OTC medications and 4 (80%) had taken herbal medicines, and 2 (40%) experienced ADRs. It was also found that all 5 patients had missed the dose some time during the treatment and did not have their disease under control and 2 (40%) experienced ADRs.

5. Limitations

This study included only the baseline evaluation of the parameters and hence do not include the findings of the impact of intervention by the pharmacist.

6. Conclusion

The knowledge of the asthma patients was found to be poor, suggesting the need for interventions. Missing the dose was the most commonly encountered drug taking behavior. The compliance was found to be good and the patient satisfaction was average. Involvement of a pharmacist let counseling and care program may be useful in improving all knowledge, QoL, compliance and satisfaction of asthma patients. It can in turn also improve the clinical outcomes of the patients.

7. Future directions

In the future, intervention can be carried out wherein the impact of pharmacist providing counseling can be evaluated. A large scale study can be carried out involving a large number of patients and increasing the number of study areas.

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None.

Conflict of interest

Authors report no conflict of interest associated with the study.

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