<u>**Research Article**</u>

DEVELOPMENT AND VALIDATION OF KNOWLEDGE, ATTITUDE, PRACTICE QUESTIONNAIRE FOR ASTHMA AND ASSESSMENT OF IMPACT OF PATIENT EDUCATIONON ASTHMA PATIENTS

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ABSTRACT

Objective: The aim of this study was to develop and validate knowledge, attitude, practice (KAP) questionnaire for asthma and to educate the patients using GINA recommended pocket guide and to assess the impact of patient education and medication adherence on asthma patients.

Methods: KAP questionnaire was developed and validated by clinical pharmacists, pulmonologists, language and public health experts. Patients were educated for a period of 6 months. Patient's KAP score was observedon baseline and end visit. Patient medication adherence was evaluated by monitoring medication compliance cards, canister weights and tablet counts.

Results: The standardized cronbach's alpha value was 0.81. The test-retest reliability was 0.89. Patient education resulted in better improvements in knowledge, attitude and practice of patients. Adherence ranged from 91.8 to 100%.

Conclusion: The developed questionnaire was culture fairand useful tool to measure the KAP of asthmatic patients. Patient education improved patient's knowledge, attitude and practice towards the management of asthma.

Keywords: Asthma, Knowledge, Attitude, Practice, Patient education.

INTRODUCTION

Asthma affects 300 million people worldwide and its prevalence is still increasing. The high prevalence of asthma and costs of asthma therapy place a considerable burden on health care systems. Asthma attacks and symptoms can be controlled by an appropriate treatment and proper useof medicines[1].The goals of asthma therapy are to achieve asthma control (i.e.) near normal lung function, absence of asthma symptoms, no activity limitations and no episodes of worsening asthma. However many patients with persistent asthma cannot attain all these treatment goals though they are under treatment and resulting in poor quality of life. This is mainly because there is a gap between what actually physician recommended and what is in actual practice by the patients. This gap is due to poor knowledge and attitude about asthma to patients and as well as poor adherence to medications[2,3].

Current treatment guidelines for asthma emphasize the importance of patient education to asthmatics[4]. However, in South Indian hospital, especially inTamilnadu patient education by a trained clinical pharmacist is almost nil and pharmacists are underutilized in the Indian health care system.The present study is aimed to develop and validate KAP questionnaire for asthma in and to record the patient's baseline knowledge, attitude, practice, medication adherence and educating them regardless of whatever the medication they take and to compare the same with the end visit record.

PATIENTS AND METHODS

The study was conducted at the pulmonary medicine department in SRM Medical College Hospital and Research Center, SRM University, kattankulathur, Tamilnadu, India. Institutional ethics committee (IEC) approval was obtained prior to the commencement of the study.

Development of questionnaire

Item generation

The content of the questionnaire was developed by the research team on this project. An extensive literature review was carried out by the team to retrieve already published instruments and to identify the common domains. After the review of literature, the research team decided to include three domains namely knowledge domain, attitude domain, practice domain and each domain consisted of five questionsto assess the patient's knowledge and attitude about their disease and practice on disease management.

Item review

The rationale of KAP questionnaire was reviewed by a panel of experts namely pulmonologists, clinical pharmacologists, language and public health experts. A content validity ratio was then calculated for each item and the value higher than 0.78 was considered satisfactory[5].Questions about knowledge were corresponding to patient's awareness of disease, part of the body affected, causative factors, symptoms and physiological changes during asthma. Second part of this questionnaire was about patient's attitude on the curability of the disease, convenient dosage form, continuation of medications, opinion on self-adjustment of doses and contagiousness of disease. Patient's practice of disease management was assessed by questions regarded their habit of carrying medications, inhalation techniques followed, dosage timings, avoiding food items and involving in activities which might exacerbate asthma.

Validation of questionnaire

Cross-cultural validation was adopted as shown in Figure 1. Internal consistency and test-retest reliabilitywere performed.
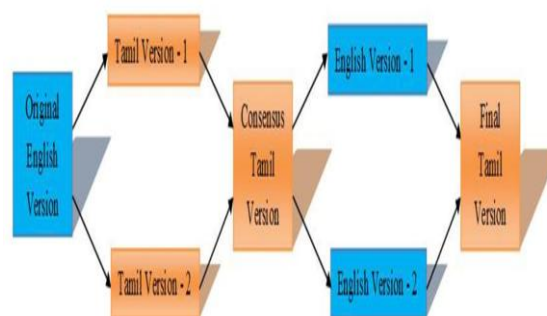

Fig. 1: Schematic for steps in cross - cultural validation

Measurement of KAP

For the purpose of statistical analysis, scoring was given to each domain. Each correct answer yielded 1 point and wrong statement yielded 0 point. Each domain scores were calculated by summing up correct answers and the score ranged from 0 to 5 for each domain and totally 0 to 15 for KAP.

Patient education

In the usual practice, patients receive a general counseling from the physicians or their assistants. Apart from these, a patient education material recommended by the GINA, which is available as 'patient guide'was used in educating the study patients in all their clinic visits[6].The impact of education on study patients was compared between the baseline and end visit KAP report. All the patients were educated on day 0 (visit 1), 30, 60, 90, 120, 150 and 180 (end visit). MCC and patient adherence were also checked at the entire clinic visit, whereas KAP questionnaire was administered at baseline (visit 1) and end visit.

Medication compliance assessment

Patient's compliance with the study medication was assessed with the help of Medication Compliance Cards (MCCs) which were provided to the patients at all the clinic visits except the end visit. All the patients were instructed to mark on the respective date and time (morning/evening) after taking the study medication. The patients were also instructed to bring back the MCCs at their follow-up visits.

• Consumed medication = Medication issued – Returned medication of previous visit

• Score (% compliance) = (consumed medication / medication issued) x 100

• ≥80% of study medication consumed according to the prescribed regimes were considered as complaint and ≤80% of study medication consumed according to the prescribed regimes were considered as non-compliant.

Patient adherence assessment

An adherence form, which was maintained at the study site, was used to document the observations from investigator side. The visit date was entered in the data sheet with the weight of the inhaler and the number of tablets at the time of medication issue. The unconsumed medications were checked at the follow-up visits.The compliance as per the MCCs was cross checked with the canister weights and / or counting the tablets.

RESULTS

Validation parameters

The standardized cronbach's alpha value of 0.81 suggesting that the items are highly correlated and there is a good level of internal consistency. The test-retest reliability was 0.89 indicating a high reliability. None of the questions in final Tamil version were unacceptable by the patients and no questions seemed to upset or distress any of the patients.

Patient education

Patient education was given to patients, either in one to one method or group counseling method. The following subjects were dealt in educating the patients i.e nature of asthma disease, causative factors and preventive measures of asthmatic attacks, needed lifestyle changes for asthmatic person, medications usage, how to get help in case of emergencies and method of using peak flow meters for monitoring lung functions.

A checklist with ten steps for proper use of the inhaler was developed with the standard procedure. The patients were checked for their inhaler techniques at baseline and at every follow-up until the end of the study. Patients were assessed individually for the appropriate use of inhalers. The steps which patients felt tough were identified for each patient and were educated and trained. Training was given using dummy inhaler.

The assessments of KAP results given in Tables 1-3 showed that patient education resulted in better improvements in knowledge, attitude and practice of patients when compared to baseline values.

Table 1: Knowledge assessment of study population

S. No.	Knowledge assessment	Baseline	End visit	% change
1	Can you name the disease you are suffering?	69%	100%	31%
2	What are the symptoms of your disease?	46%	93%	47%
3	Can you name which part of the body is affected?	33%	98%	65%
4	Rescue medicines	19%	86%	67%
5	Do you know the causative/ worsening factors of your disease?	23%	94%	71%

Table 2: Attitude assessment of study population

S. No.	Attitude assessment	Baseline	End visit	% change
6	Can your disease be cured or controlled?	13%	98%	85%
7	Can you adjust dose of the medications according to your symptoms / cost?	32%	96%	64%
8	Is your disease contagious?	65%	98%	35%
9	For your disease condition, can you do breathing exercise	62%	96%	34%
10	Is your disease fatal?	60%	98%	38%

Table 3: Practice assessment of study population

S. No.	Attitude assessment	Baseline	End visit	% change
11	If you are prescribed with medicines for one month	47%	97%	50%
12	Do you take medicine at the exact time as prescribed	84%	100%	16%
13	Can you go for doubling the dose if a dose is missed	36%	100%	64%
14	Will you avoid taking ice cold drinks or cold foods	31%	93%	62%
15	If you are not having asthma symptoms	48%	98%	50%

Adherence assessment

Most of the patients completed their scheduled clinic visits (91.42%). Adherence to treatment was evaluated on the basis of adherence assessment form, MCCs, canister weights and tablet counts. Adherence ranged from 91.8 to 100%.

DISCUSSION

There is no validated knowledge, attitude, practice questionnaire for asthma. This is the first study to develop and validate knowledge, attitude, practice questionnaire for asthma. The results showed that the KAP questionnaire is a reliable and internally consistent questionnaire that is capable of measuring the changes that occur in these three domains following asthma education. The KAP questionnaire is a comprehensive, easily understandable and easy to interpret questionnaire that allows clinicians, clinical pharmacists and other health care professionals to measure the changes asthmatic patients experience as a result of a behavioral intervention or asthma education. All the patients were cooperative during the study. The developed questionnaire was acceptable, practicable and culture fair in this population.

Various asthma treatment guidelines consider education to be an integral component of asthma management[7,8].The major components of health behavior and influence compliance concerning asthma management are the patient'sattitudes towards the disease and their belief, through which successful asthma care is achieved. To our knowledge this is the first study to use the GINA recommended patient guide (In Tamil) for patient education.

KAP assessment is one of the integral components of patient assessment of their actual knowledge of the given subject, attitude towards the established norms in that disease and the actual practice. This assessment helps the health care provider not only to evaluate the quality of an education program but also, in general, will quantitatively assess the impact of such programs with KAP scores.

Though KAP assessment was accepted by many researchers in studying the impact of educational intervention, this is the first study of its kind in south Indian set-up. We did not have any similar studies in our population to compare our results. In a study carried out by Yang *et al* it was reported that education program significantly improved the knowledge as well as quality of life scores in the asthma patients[9].Similar findings were observed by Boulet*et al*and Yamaoka *et al*in their studies[10,11]. In contrast, Abdulwadud*et al*reported that a limited asthma education program in a hospital outpatient setting had a positive impact on patients' knowledge of asthma, but not on their quality of life, self-management skills, or attitudes and beliefs about asthma [12].The reason would be that the patients had received education only at the beginning of the study and not in the follow up visits.

Meszaros*et al*suggests that it is necessary to provide patient education on a regular and ongoing basis to achieve permanent improvements[13].In the present study, patients were educated on every month during their clinic visit. Asthma education programs induce better control of asthma symptoms, improve results on lung function tests, yield psychological benefits for patients and parents and upgrade the quality of life. Education on correct operation of the new inhalers and spacers will help to improve compliance[14].

In addition, it is expected from the education intervention studies that patients will gain such benefits as positive attitudes, greater family communication, increased physical activity and feelings of control, increased use of objective measures of airflow obstruction to determine asthma severity, improved treatment compliance, self-management, quality of life and pulmonary function and reduced asthma severity, school absenteeism, emergency room visits, admissions to hospital, health care use and health care costs. The present study proved also proved that structured education by a trained person (clinical pharmacist) improved the awareness of asthma patients about asthma disease and its medicines. Few previous studies have reported that asthma patients were afraid of taking corticosteroid medications[15-17].Our study patients were also in the same attitude. Many asthma patients were reluctant to use corticosteroids. This is merely because of poor knowledge about the safety of corticosteroids. Using medicines without knowing some fundamental information about the treatment may lead to non-compliance. In the present study, patients were not only taught with the validated educational material but also counselled and corrected their misconception about the disease or medications. Future studies may be directed with a more structured intensive educationalprogram.

CONCLUSIONS

The developed KAP questionnaire had an acceptable test-retest reliability and good construct validity. Our study patient's initial knowledge and attitudeon asthma was low. Patient education found to have significant influence on improvement in the knowledge, attitude and practice of asthma towards its management. The concept of patient education is well established in developed countries, but yet to be initiated in developing country like India. Provision of patient education by the clinical pharmacistwas well received and encouraged by the patients and medical fraternity.

Thus patient education may help in reducing the mortality and morbidity from asthma.

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