

Disease Impact and Patient Insight - A Study on a Local Population of Asthmatics

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Summary

The cornerstone of asthma management is achieving adequate symptom control and patient education. We studied in our local population of asthmatic patients how well their symptoms were controlled with currently prescribed treatment and their insight into the disease and its management. Over a 6-month period, 93 asthmatics recruited from two local government health clinics and a state hospital were interviewed using a standard questionnaire. Patients were classified into 4 groups based on the treatment they were on according to Global Initiative for Asthma (GINA) treatment guidelines. The number of patients in Step 1 (rescue medication alone), Step 2 (1 controller medication), Step 3 (2 controller medications) and Step 4 (at least 3 controller medications) were 8, 39, 34 and 12, respectively. Except for day symptoms in Step 1 group, fewer than 50% achieved minimum day or night symptoms and no restriction of daily activities. Questions on patient insight were only available for 50 patients. Weather change (74%), air pollution (66%) and physical stress (46%) were the three highest ranked common asthma triggers. More than half correctly recognized the important symptoms of a serious asthma attack but fewer than 15% were familiar with the peak flow meter and its use or with the asthma self-management plan. Most patients perceived that their treatment had helped reduce disease severity and exacerbations. We conclude that symptom control and some aspect of patient education are still lacking in our local asthmatics.

Key Words: Asthma, Symptom control, Insight, Malaysia

Introduction

The cornerstone of asthma treatment is achieving adequate symptom control and patient education^{1,4}. The global increase in asthma morbidity⁵ require a closer examination on aspects of asthma treatment strategies and adherence to these recommended strategies by healthcare professionals and patients.

A recent large survey of more than 2000 asthmatic patients in seven European countries showed that a significant proportion of asthmatic patients had unacceptably frequent asthma symptoms that had a serious impact on their daily lives despite their currently prescribed treatment⁶. In this study on a local population of asthmatic patients in Malaysia,

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we set out to determine how well their symptoms were controlled with currently prescribed treatment and to assess their level of insight into the disease and its management.

Materials and Methods

Over a period of 6 months (April to October 2001), 93 asthmatic patients were recruited prospectively from two urban-based health clinics (Klinik Seremban and Klinik Ampangan) and from the acute medical wards of an urban-based 800-bed state hospital (Seremban Hospital) belonging to the Ministry of Health, Malaysia. Only patients with clearly documented (new or previous) physician-diagnosed asthma were included. Exclusion criteria included those who were current cigarette smokers, those who had previously smoked more than 10 pack years, those with a history of chronic bronchitis or possible chronic obstructive airway disease, and those with other co-existing lung diseases such as fibrosis. The recruits were categorized into four groups (i.e. Step 1 to 4) according to the day-to-day asthma treatment that they had been prescribed [Table I]. The categorization was based on the recommendations of the Global Initiative for Asthma (GINA) treatment guidelines¹ with some minor modifications in order to accommodate for our local pattern of drug prescribing. The Step 1 group of patients were only on short acting β_2 -agonist (SABA) as rescue medication alone, while the Step 2 group of patients used inhaled corticosteroids (i.e. beclomethasone <500 μg daily or equivalent) regularly in addition to rescue medication. In Step 3, the beclomethasone dose was between 500 to 1000 μg daily (or equivalent) taken alone, or regardless of the beclomethasone dose, one other controller medication (e.g. long acting β_2 -agonist, theophylline, leukotriene modifier) was used. In Step 4, the beclomethasone dose was above 1000 μg (or equivalent) taken alone, or regardless of the beclomethasone dose, at least two other controller medications were used. Patients who were not on inhaled corticosteroids were categorized according to the number of other controller

medications they were on (i.e. 1 controller medication in Step 2, 2 controller medications in Step 3 and at least 3 controller medications in Step 4). Lung function results were not taken into consideration in our study.

The authors interviewed the patients using a standard questionnaire. Four treatment goals recommended by GINA¹ were used to assess disease impact: 1) Minimum day symptoms (We defined this as having daytime symptoms that required fewer than two SABA inhalations or tablets in a day); 2) Minimum night symptoms (We defined this as having attacks on less than two nights in a month that required SABA as rescue medication); 3) 'No limitation on daily activities due to asthma' based on an average day in the previous three months and 4) 'No side-effects from medication'.

The aspects of patient insight studied were 1) their knowledge of the common triggers for asthma exacerbation (a list of common triggers was presented and patients were asked to identify the three most important triggers that they knew of); 2) symptoms that indicated a serious asthma attack (a list of features was presented); 3) their perception on the effectiveness of the asthma treatment they were on and whether they or their doctors had reduced or stopped their treatment in the previous 3 months; 4) their knowledge and use of the peak flow meter; and finally 5) their knowledge on the asthma self-management plan [Table II and III]. The answers to each question were 'yes', 'no' or 'unsure'. The latter two were considered together as 'no' in the analysis of the data. This study was approved by the local university research and ethics committee. Verbal consent alone was obtained from subjects for the purpose of this study.

Results

The majority of asthmatic patients were in the Step 2 (42%) and Step 3 (36%) categories. 9% of the subjects were in the Step 1 and 13% were in the

Step 4 category. Most patients were in the older middle age range with a female preponderance. Except for the Step 1 category, Malays were the largest ethnic group, followed by Indians and then Chinese [Table I].

For day symptoms, fewer than 50% of patients in all categories had minimum day or night symptoms with the exception of the Step 1 group where 62% achieved this objective. With regards to no restriction of daily activity, even fewer achieved this. The majority of patients did not complain of any side effects from the medications [Figure 1]. Overall, 19 (20%) patients reported side effects, commonest of which were tremor (12%) followed by steroid effects (local or systemic) (3%), dizziness (2%), palpitation (1%) and cramp (1%).

The three highest ranked triggers for asthma exacerbations were weather change (74%), air pollution (66%) and physical stress (46%). The others were cigarette smoking (44%), upper respiratory tract infection (42%), exercise (38%), emotional and mental stress (34%), and certain types of food (16%). Eight percent identified cold drinks as triggers and two percent indicated certain drugs [Table II].

More than half the patients correctly identified dyspnoea, tachypnoea, inability to finish full sentences, exhaustion, tachycardia and hypotension as indications of a serious asthma attack. Confusion and cyanosis were identified by 24% and 20% of the patients respectively as symptoms of a serious attack. Only 6% understood that a deterioration in the peak expiratory flow rate (PEFR) indicated severity [Table II].

The majority of subjects perceived that their prescribed treatment had helped reduce the disease severity (96%) and frequency of asthma attacks (72%). 16% of the subjects admitted to discontinuing or reducing the medication by themselves while 36% had their medication discontinued or reduced in the previous 3 months by their doctors. Only 14% possessed a peak flow meter and fewer than half of them (6%) used it and had knowledge of his or her best reading. 14% of the subjects had heard of the asthma self-management plan and more than two-thirds (10%) of them practiced it. The majority of the patients who practiced the plan considered it useful in reducing emergency visits to doctors or hospitalization (8%) [Table III].

Table I: Clinical details of asthmatic subjects (n= 93)

Categorization according to prescribed treatment:	STEP 1	STEP 2	STEP 2	STEP 2
Subject, n (%)	8 (9)	39 (42)	34 (36)	12 (13)
Median age, years (range)	52 (30-72)	50 (18-76)	49 (12-76)	51 (43-74)
Male, n (%)	2 (25)	13 (33)	14 (41)	4 (33)
Ethnicity, n (%):				
Malay	2 (25)	20 (51)	18 (53)	6 (50)
Chinese	1 (12.5)	3 (8)	3 (9)	3 (25)
Indian	5 (62.5)	16 (41)	13 (38)	3 (25)

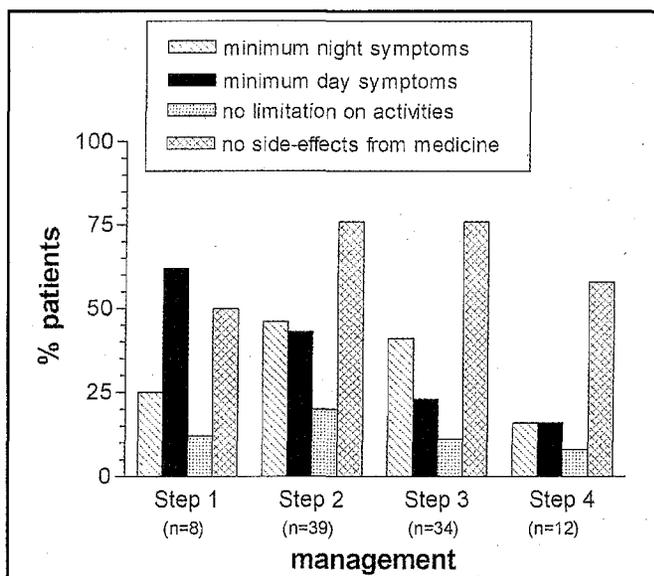


Fig. 1: Disease impact in four management categories. Except for day symptoms in the Step 1 category, fewer than 50% achieved minimum day or night symptoms control and no restriction of daily activities. Most patients did not complain of any side effects from medication.

Table II: Patient insight on common triggers and symptoms indicative of serious asthma attack

Patient (n=50) insight on-	n (%)
Common triggers of asthma attack	
Weather change (hot or cold)	37 (74)
Air pollution (e.g. smog, car fumes, road works)	33 (66)
Physical stress	23 (46)
Cigarette smoking (active or passive)	22 (44)
Upper respiratory tract infection (e.g. head cold, running nose)	21 (42)
Exercise	19 (38)
Emotional & mental stress	17 (34)
Certain food	8 (16)
Cold drinks	4 (8)
Certain drugs (e.g aspirin, (blockers)	1 (2)
Symptoms of serious asthma attack	
Dyspnea ('breathlessness')	41 (82)
Tachypnea ('breathing fast')	38 (76)
Unable to finish full sentences	36 (72)
Exhaustion	31 (62)
Tachycardia ('fast heart rate')	27 (54)
Hypotension ('feel dizziness because of low blood pressure')	25 (50)
Confusion	12 (24)
Cyanosis	10 (20)
Peak expiratory flow rate (PEFR) changes	3 (6)

Table III: Treatment received, PEFR use and asthma self-management plan (n=50)

	n (%)
On treatment received	
Have helped reduce disease severity	48 (96)
Have helped reduce frequency of asthma attacks	39 (72)
Discontinue or reduce medication by themselves in last 3 months	8 (16)
Discontinue or reduce medication by doctors in last 3 months	18 (36)
On PEFR	
Possess a peak flow meter	7 (14)
Use peak flow meter and have knowledge of his or her best reading	3 (6)
On asthma self-management plan	
Heard of this	7 (14)
Practice this	5 (10)
Find this useful (i.e. reduce A&E visits or hospitalization)	4 (8)

Discussion

In our study population of asthmatic patients, the majority was in the Step 2 and 3 categories. This indicated that most were already being introduced a controller (i.e. regular maintenance therapy), and this was in the majority of them an inhaled corticosteroid. Contrary to what some might have expected, this finding reflects a wide prescribing of a controller by our Ministry of Health doctors. This is consistent with the current concept that anti-inflammatory therapy (in the form of a controller) should be introduced early in the management of a chronic inflammatory condition such as asthma¹⁴. The older median age observed suggests that most of our patients had the disease for a long duration or had later onset disease. The female preponderance may be the result of our strict exclusion criteria on cigarette smoking. As smoking is quite prevalent among our local men, many asthmatic males were therefore ineligible for the study. Our reason for excluding smokers was to avoid recruiting patients with Chronic Obstructive Pulmonary Disease where the treatment strategies and goals are different from those of asthma⁷. The similarity in the ethnic distribution between our patients and the population covered by our hospital and health

clinics⁸ confirms that the study group is representative of the local population.

From the perspective of disease impact, our findings show that in general despite treatment, fewer than half the asthmatics achieved the key treatment objectives, namely, having minimal chronic symptoms (day or night) and not having any restriction of daily activities. As the majority were already on inhaled corticosteroids, the obvious question is whether our patients were compliant to treatment or whether they had been taking inhaled therapy correctly. In fact, we recently showed that up to 40% of our local asthmatic patients used the metered dose inhaler device inefficiently [unpublished data]. These questions were not specifically addressed in this study but they should be considered when interpreting our findings.

Lack of symptom control and failure to achieve treatment objectives in asthma is not uncommon. In a recent large study involving seven European countries, known as Asthma Reality and Insight Study in Europe (AIRE), Rabe et al⁶ showed that 46% of patients reported day symptoms and 30% complained of night symptoms at least once a week. Furthermore they showed that in the

previous 12 months, 25% of their patients had made emergency visits to doctors for asthma and 7% were hospitalized. More recently, a similarly designed study involving eight Asia-Pacific countries, including Malaysia, (known as Asthma Insight and Reality Study in Asia Pacific, AIRIAP) showed that over one-third of the asthmatic patients had day symptoms and more than a quarter had sleep disturbance due to asthma. Furthermore, half the patients complained that the asthma symptoms had limited their daily activities and up to 44% required emergency treatment for asthma [personal communication, GlaxoSmithKline Pharmaceutical (M) Sdn Bhd]. The proportion of patients from Malaysia reporting day symptoms, night symptoms and restriction of activity were 27%, 23% and 43%, respectively. On these same outcomes, the figures in our study were higher.

If the poor symptom control was due to poor compliance to treatment, then it is unlikely to be due to side effects of the drugs as most of the patients in our study did not complain of any side effects to their medicine. The commonest side effect was tremor (12%) and this might be due to the prevalent use of oral short acting β_2 -agonist. Only 3% complained of steroid side effects. This suggests that if necessary, doses of corticosteroids could be further increased to achieve better control.

Most patients could correctly rank the common asthma triggers such as weather change, air pollution, physical stress and cigarette smoking. 'Certain drugs' ranked last in the list of trigger factors as only 2% of patients acknowledged this as a common asthma trigger. This finding is perhaps not surprising as the patients were only asked to select three factors. However one would have expected that upper respiratory tract infection would rank higher than the 5th place in this study. More than half the patients could identify most of the serious symptoms of an asthma attack. However, less than one quarter knew that confusion and cyanosis were serious features and

only 6% understood the importance of PEFr changes. The latter could very well be due to the fact that very few patients were told about peak flow meter, let alone possess one. These findings suggest that patient knowledge can be further improved.

Our finding that most patients perceived that their treatment had helped them indicates treatment satisfaction. This might explain why some patients had reduced their medication either by themselves or by their doctors in the preceding three months. It is difficult however, to reconcile the findings that the majority of patients still complained of frequent day and night symptoms as well as restriction of daily activities. Perhaps, many asthmatic patients had the misconception that achieving complete symptom control and carrying out fully unrestricted daily activities were not possible and therefore they settled for a less-than-optimal functional state. In fact this was shown in both the AIRE⁶ and AIRIAP studies, where more than one third of the patients reporting severe persistent symptoms considered their asthma to be completely or well controlled.

PEFR home monitoring has been advocated as a means to improve asthma self-care and is a recognized component of the patient self-management plans⁹⁻¹¹. Only a minority of our patients possessed peak flow meters and fewer than half of them used it or had knowledge of their best reading. Similarly, only a small proportion of patients had heard of the asthma self-management plan or practiced it. However, most of those who practiced the plan had found it beneficial. In our hospital, the asthma self-management plan consists of a standard booklet indicating the patient's best PEFr readings and providing instructions on what to do in the event of an exacerbation (including steroid intake). This is given to patients on their discharge from hospital and the records are reviewed regularly during the follow-up visits. Studies¹² have shown that, in general, patients viewed these action plans positively and the commonest reason for not

having a plan was that the patients had not been given one by their doctors. This was most likely the case too in our patients.

Healthcare professionals play a key role in the combat against the increasing asthma morbidity

and prevalence. The well-established treatment goals, including patient education have provided a clear direction for active pursuance. Our findings show that there are still considerable milestones to be achieved in symptom control and patient education in our asthmatic patients.

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