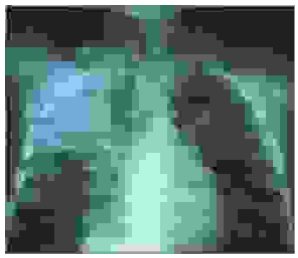
ORIGINAL PROF-784

BRONCHIAL ASTHMA;

ASSESSMENT OF PATIENT'S AWARENESS LEVEL ABOUT DIFFERENT ASPECTS OF THEIR DISEASE



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ABSTRACT... ranamohsindr1@hotmail.com **Objectives:** To assess the patients level of understanding of their disease and their experience in the management offered to them. **Introduction:** Bronchial Asthma is a common episodic disorder of all ages. Successful management depends on active and continuous interaction between the clinician and a well-educated patient. Detailed interview of patients ware carried out on different aspects of their experience of the management and to assess the level of understanding of their disease. This would highlight the common deficiencies in the management in our own setup. **Study Design:** Observational study. **Period:** From January to December 2003, **Setting:** Al-Shifa Medical Center Faisalababd **Materials & Methods:** Any patient with a diagnosis of Bronchial Asthma and using MDI device was assessed for the competency of diagnosis. A specially trained nurse interviewed the eligible patients on a prescribed performa. The physician checked all the information before making a detailed clinical examination. Patients below the age of 16 or over the age of 60, seriously sick patients and COPD were excluded. **Results:** 192 patients were enrolled in this study. There were 112 males and 80 females. 66% incriminated allergy to something, 75% blamed upper respiratory tract infection, 54% recognized exercise as the precipitating event, 33 attributed it to emotions, only 8% recognized menses as the factor, 54% related it with environmental change or specific environment, 41% related it with change in season or through some particular season, 68% called it dust allergy, 12.5% recognized pets and chemicals as the culprit, 8% incriminated work place environment and 16.7% could recall some specific drug as the cause of their attack of asthma. One patient could connect more than one stimulus to his or her attack. Only 52%, 44% and 32% of patients knew the mode of action and the difference between the three most commonly used drugs i.e. aminophyllines and steroids respectively.92% did not have a rescue prescription for their acute severe attack or had any concept of it. 79% gauged the severity of their attack of acute severe Asthma on the basis of perceived severity of symptoms and 58% on frequency of symptoms. Only 29% could recognize bouts of cough as a symptom of Asthma. Only 8% of patients were objectively tested by measuring PFR at the clinics of their doctors and only half of them were doing it at home. **Conclusion:** Well-educated patients can do a lot in modifying their treatment. This study speaks loudly of the inadequacies in our management. More emphasis on different aspects of patient education is the only way to improve our standard of Asthma care.

Key Words. Bronchial Asthma, PEFR, Rescue Prescription.

INTRODUCTION

Bronchial asthma is an episodic disorder of bronchospasm affecting all ages. The patient is overwhelmed by the acute attack coming on suddenly or may be crippled by a chronic narrowing of the airways. Management of Asthma involves a lot of patient education, which especially concentrates on identifying and avoiding triggering agents, assessing severity of the attack, both subjectively as well as objectively, and modifying the dose of drugs accordingly, emergency measures to be taken at home and reporting to emergency promptly when indicated and proper use of the inhaled medicines.

We decided to assess the patients' information level about their disease on the following parameters: the precipitating factors for acute attack according to the patients believes and knowledge, the medicines in use and some idea of their mechanism of action, how to grade the severity of their attack, experience of objective measurement of Peak Expiratory Flow Rate (PEFR), also called Peak Expiratory Flow (PEF), at the clinic and the idea of using Peak Expiratory Flow Rate meter at home to measure the progress of their attack objectively, experience of objective measurement of airflow limitation, Forced Expiratory Volume in first second (FEV1) or by the ratio between FEV1 and Forced Vital Capacity (FEV1/FVC) as a diagnostic or follow-up tool, whether they recognize cough especially nocturnal cough as a symptom of uncontrolled asthma, a rescue prescription and the concept of a rescue prescription.

This study shall draw our attention to the missing effort on the part of clinicians thereby improving the standard of Asthma management for our patients through their education.

MATERIALS & METHODS

The medical specialist evaluated all the patients presenting to outdoor department with a diagnosis of Bronchial Asthma for the competency of the diagnosis. Guideline issued by 1991 NAEPP Expert Panel Report and revised in 2002[1] was followed which requires that episodic symptoms of airflow obstruction are presently based on history, examination and relevant investigation, are at least partially reversible and alternative diagnosis have been excluded to make a competent diagnosis.

If diagnosis was found to be competent, they were enrolled in the study and were asked to fill a performa with the help of a specially trained nurse. The nurse checked use of PEFR meter. The treating physician rechecked adequacy of education. This study was carried out at a local hospital , where a special Asthma clinic is arranged twice a month on specified dates. Patients are examined by any of the participating physicians. Study was carried out from January to December 2003.

Inclusion and exclusion criteria:

Any patient who had a competent diagnosis of Bronchial Asthma and presently using MDI were enrolled. Seriously sick patients were excluded. Patients under the age of 16 or over the age of 60 were excluded. Patients with clinical diagnosis of Chronic Obstructive Pulmonary Disorder (COPD) were excluded.

RESULTS

192 patients were enrolled during one-year period, from January to December, 2003, in this study. There were 112 males and 80 females. 136 patients belonged to urban background and 56 were from rural background. 96 patients reported good socioeconomic status, 64 were from average and 32 belonged to poor socioeconomic class. 80 patients had family history of Asthma and 56 patients had history of atopy in the immediate family.

32 (16.7%) patients, all females were less than 30 years old. 48 (25%) patients, 32 males and 16 females,

were between 30 to 39 years of age. 56 (29%) patients, 24 males and 32 females, were between 50 to 59 years of age. 40 (20.8%) patients, 16 males and 24 females, were between 60 to 69 years of age. 16 (8.3%) patients, 8 males and 8 females, were above 70 years of age. 17% patients were uneducated, 25% had 5 years of schooling, another 25% had 8 years of schooling, 17% had 10 years of education, 4% had 12 years of schooling, 8% were graduates and 4 were having post-graduation to their credit.

37.5% patients were asthmatic for upto 5 years, 12.5% were asthmatic for 6-9 years, 8.3% were asthmatic for 10-19 years, 29.1% were asthmatic for 20-29 years and 12.5% were asthmatic for more than 30 years.

Table I. Recognition of Agents Precipitating the Attack of Asthma.

Stimulus	No Recognizing	%Age	No not Recognizing	%Age
Allergy	128	66.6%	64	33.3%
Infection	144	75%	48	25%
Exercise	104	54%	88	45.8%
Emotions	64	33.3%	128	66.7%
Menses	16	8.3%	176	91.7%
Environment	104	54%	88	45.8%
Season	80	41.7%	112	58.3%
Dust	136	70.8%	56	29.2%
Pets	24	12.5%	168	87.5%
Work Place	16	8.3%	176	91.7%
Chemicals	24	12.5%	168	87.5%
Drugs	32	16.7%	160	83.3%

66% recognized allergy to some agent as the agent precipitating acute attack of asthma. 75% blamed upper respiratory infection, 54% recognized exercise as the precipitating event, 33% attributed it to emotions, only 8% recognized menses as the factor, 54% related it with environmental change or specific environment, 41% related the attack with change in season or through some particular season, 68% claimed it to be the dust allergy, 12.5% recognized pets and chemicals as the culprit, 8% incriminated work place environment and 16.7% could recall some specific drug as the cause of their attack of asthma. One patient could connect more than one stimulus to his or her attack. Table I.

Only 52%, 44% and 32% of patients knew the mode of action and the difference between the three most commonly used drugs i.e. B2 agonists, aminophyllines and steroids respectively. None of the patients had any concept about Ipratropium, Chromolyn and the latest one, Leuketriens inhibitors. 92% of patients were using cough syrups or expectorants without knowing their role, if any in the management of Asthma. Table, II.

176 patients (92%) did not have a rescue prescription for their acute severe attack or had any concept of it. 152 patients (79%) gauged the severity of their attack of acute severe Asthma on the basis of perceived severity of symptoms and 112 patients (58%) on

frequency of symptoms. Only 56 patients (29%) could recognize bouts of cough as a symptom of Asthma.

Only 8% of patients were objectively tested by measuring PFR at the clinics of their doctor and only half of them were doing it at home. Rest had no exposure to FEV1 measurement or a proper spirometery by their treating doctor. Table, III.

Table, II. Knowledge of Mode of Action of the Drugs in Use.

Drug	No. Knowing	%Age	No. not Knowing	%Age
B2 Agonist	104	54%	88	46%
Xanthines	88	46%	112	58%
Steroids	64	33%	128	67%
Ipratropium	-	-	192	100%
Chromolyn	-	-	192	100%
Leukotrien Inhibitors	-	-	192	100%
Cough syrups	8	4%	184	96%
Expectorants	8	4%	184	96%

Table, III. Experience with Objective Measurement of Airflow Limitation.

Experience	No Experience	%age	No did not Experience	%age
PFR at clinic	16	8%	176	92%
FEVI at clinic	-	-	192	100%
Spirometery	-	-	192	100%
Home PFR	8	4%	184	96%

DISCUSSION

Bronchial Asthma is quiet a common disorder. Unlike other pulmonary diseases, a definitive pathologic picture or one diagnostic test cannot identify asthma. Rather, the diagnosis of asthma is based upon an appropriate clinical history and characteristic findings from a battery of pulmonary function tests. These most often include different measures of airflow, bronchodilators responses, lung volumes, and the diffusing capacity[2-4].

Assessment of diurnal variation in peak expiratory flow over 1 to 2 weeks is recommended when patients have asthma symptoms but normal spirometery. A 20 % difference between morning and afternoon measurements suggests asthma[5].

We enrolled 192 patients during one-year period. There were 112 males and 80 females. We had representation from both rural and urban groups, age and duration of disease, socioeconomic and educational backgrounds. 80 patients had family history of Asthma and 56 patients had history of atopy in the immediate family.

All authorities consider education to be an integral component of asthma management. Education about asthma should be aimed at altering patients' behavior rather than simply providing knowledge[6-7]. The

education must be provided at each patient contact. It shall ensure good communication between health professionals and have interactive coordination of the interventions, not relying on written or videotaped material alone, shall enable the patient to self-monitor by using either measurement of PEF or monitoring of asthma symptoms and shall be having an effective treatment plan and be able to modify treatment according to varying severity of the disease. In addition to getting knowledge, patients gain such benefits as positive attitudes; greater family communication; increased physical activity and feelings of control; increased use of objective measures of airflow obstruction (e.g., PEF) to determine asthma severity; improved treatment compliance, self-management, inhaler technique, 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[8].

The acute attack is precipitated by the inciting challenge, most commonly inhalational in origin. This is quiet contrary to the popular belief where everything is related to the diet. Foods like potatoes, shrimp, dried fruit, beer, wine contain sulfites which may be the cause of allergy otherwise food allergies are uncommon[9].

The precipitating challenge could be a single agent or multiple agents of different categories. The factors that set off and exacerbate asthma symptoms are called "triggers." Common triggers generally fall into five categories: allergens (including dust and animal fur), respiratory infections, irritants (such as smoke or chemicals), physical activity, and emotional stress. A small number of patients will develop asthmatic symptoms after exposure to aspirin or other nonsteroidal anti-inflammatory medications, like ibuprofen or naprosyn[10].

Sensitization to one or more of the major indoor allergens, such as dust mite, cat, dog, or cockroach allergens, consistently has been found to be the strongest risk factor for asthma[11-12].

Colds, influenza, bronchitis, ear infections, sinus infections, and pneumonia are very common asthma triggers because they can cause airway inflammation and increased mucus production. Asthma attacks that occur with a respiratory infection are frequently more severe than those that occur at other times. Vaccination with inactivated influenza virus does not increase the risk of an asthma exacerbation and are rather recommended especially to elderly asthmatics and COPDs[13].

There is a long list of variety of irritants that can induce asthma. Included in this group are cigarette smoke, ashes, aerosol sprays, perfumes, cooking odors, car exhaust, gas fumes, weather conditions, shower steam, fireplace smoke, air pollution, musty odors, and cleaning fluids and powders. Workplace irritants are common among factory workers who are exposed to excessive amounts of fumes and irritants[14]. Reduction of indoor pollutants can be achieved by avoiding exposure to cigarette smoke, by ensuring adequate venting of gas stoves and ensuring that wood stoves are airtight. Industrial or occupational exposure is responsible for approximately 15 percent of cases of asthma[15].

Exercise is a potential asthma trigger that should not be avoided. Aerobic exercise strengthens the cardiovascular system and may lessen the sensitivity to asthma triggers. However, it is important for persons with asthma who are not in a regular pattern of exercise to build up their activity level slowly to minimize the risk of inducing asthma. Patients shall be recommended to take medications on schedule; warm up gradually before beginning strenuous activity; consult physician about taking medication prior to physical activity; avoid exercising outdoors in extremely cold weather since cold exposure can trigger asthma. Use of Chromolyn or Nedocromil before the start of exercise may be sufficient to prevent bronchospasm. In addition, use of an intermediate-acting inhaled beta agonist (such as albuterol) 5 to 10 minutes before exercise can substantially attenuate exercise-induced symptoms[16].

In our study only 66% knew and/or recognized

allergy to some agent as the agent precipitating acute attack of asthma. 75% blamed upper respiratory infection, 54% recognized exercise as the precipitating event, 33% attributed it to emotions, only 8% recognized menses as the factor, 54% related it with environmental change or specific environment, 41% related the attack with change in season or through some particular season, 68% claimed it to be the dust allergy, 12.5% recognized pets and chemicals as the culprit, 8% incriminated work place environment and 16.7% could recall some specific drug as the cause of their attack of asthma. Majority of patients connected more than one stimulus to his or her attack. It is high time to remind ourselves that increasing medication for asthma control should not be used as a substitute for avoidance of exposure to allergens and irritants[17].

Many of Asthma related deaths and much of the morbidity results from patient's inability to assess the severity of the attack and seek proper medical attention. 156 patients (79%) gauged the severity of their attack of acute severe Asthma on the basis of perceived severity of symptoms and 112 patients (58%) on frequency of symptoms. Only 56 patients (29%) could recognize bouts of cough, especially the nocturnal cough, as the symptom of uncontrolled Asthma.

In most patients symptoms are a more sensitive measure and change earlier in the course of an exacerbation[18]. Aggressive patient counseling on this aspect can be extremely helpful in reducing the un-necessary morbidity and mortality caused by un-necessary delay in increasing the dose of routine medicine, starting add-on therapy and seeking emergency help[19].

Asthma is responsible for only small (14%)number of cases of chronic cough. Episodic wheezing and dysnea commonly accompany cough due to asthma, but it can also be the sole manifestation of a form of asthma called "cough variant asthma". In some cases, the cough is accompanied by reversible airflow obstruction. In other patients, baseline spirometry is normal, but airways hyper-reactivity can be demonstrated by bronchoprovocation testing[20].

Approximately 75 percent of asthmatics awaken at least once a week with symptoms, 64 percent three times per week, and 39 percent every night. Therapy of nocturnal asthma consists of both indirect and direct approaches. Indirect interventions are effective in only a small proportion of the asthmatic population. The indirect measures include control of contributing factors such as sleep apnea, gastroesophageal reflux, rhinitis, and sinusitis. Concomitant obstructive sleep apnea can cause worsening of nocturnal asthma. Maximization of the dosage of daytime asthma medications and appropriately timed use of medications such as a long-acting inhaled beta-2 agonist, a once-daily sustained theophylline preparation, oral corticosteroids and changing the timing of oral corticosteroids to the mid-afternoon, and Leuketriens modifiers may be beneficial[21].

Treating Bronchial Asthma without objectively measuring the degree of narrowing of the airways amounts to treating hypertension without measuring Blood Pressure or treating Diabetes without measuring blood sugar. Ironically this is a very common happening in our clinical setting. The detection of airflow limitation in the patient with asthma can be accomplished with a variety of techniques. The most common include measurement of PEF, FEV1, and the flow-volume relationship. Though the ratio FEV1/FVC is the best clinical parameter for measuring the degree of airways obstruction, measuring PEFR is a very useful surrogate measure.[21].

Only 8% of patients were objectively tested by measuring PEF at the clinics of their doctor and only half of them were doing it at home. Rest had no exposure to FEV1 measurement or a proper spirometery by their treating doctor. Monitoring of pulmonary function in physicians' offices should be routine. Peak flow meters are designed as monitoring, not as diagnostic, tools in the office.[22]. We would like to highlight the issue and very strongly recommend to our readers to make PEFR meter necessary part of

the examination kit. Accordingly, it is important that patients are taught and observed, and proper technique should be reinforced at each clinic visit.

Patients have the right to know about their prescribed medicines. Management of Asthma involves two groups of drugs. Bronchodilator drugs as the symptomatic relief producing drugs and anti-inflammatory drugs as the drugs to modify the underlying pathology. Only 52%, 44% and 32% of patients knew the mode of action and the difference between the three most commonly used drugs i.e. B2 agonists, aminophyllines and steroids respectively. None of the patients had any concept about Ipratropium, Chromolyn and the latest one, Leuketriens inhibitors.

92% of patients were using cough syrups or expectorants without knowing their role, if any in the management of Asthma. This can very well explain the reasons for the poor outcome. Mostly patients take only bronchodilators on their own and many are taking different cough syrups without recognizing that cough is an important and common symptom of Asthma attack. This leads to under- treatment and delayed treatment.

Asthma is an episodic disorder, which comes on suddenly, and many a time with vicious severity. Patient should be well educated and equipped to manage this emergency or to at least initiate proper emergency steps at home. Patient should be able to recognize the severity of the acute attack and seek proper medical help at appropriate moment without un-necessary delays. Concept of rescue prescription was developed to serve this objective. A written action plan for guided self-management, usually based on an evaluation of symptoms, and must be provided for all patients[23].

Rescue prescription have detailed instructions to increase the dose and frequency of inhaled bronchodilators matching the severity of the acute attack, increased dose of the inhaled steroids, addition of oral steroids and oral bronchodilators. Timely administration of systemic steroids for severe asthmatic exacerbations is probably the single most effective strategy for reducing emergency department visits and hospitalizations for acute asthmatic attacks.[24]. It shall have detailed instructions as when to seek emergency help. Here again the picture is quiet gloomy where 92% patients did not have a rescue prescription for their acute severe attack or had any concept of it.

Patient education is the mechanism through which patients learn to successfully accomplish those tasks. It is also a powerful tool for helping patients gain the motivation, skill, and confidence to control their asthma (25). Asthma education can be cost-effective and can reduce morbidity for both adults and children, especially among high-risk patients. Education tailored to the needs of the individual patient, considering cultural or ethnic beliefs or practices that may influence self-management activities and modified educational approaches, are needed. Cultural variables may affect patient understanding of and adherence to medical regimens. Every effort should be made to discuss asthma care, especially the self-management plan, in the patient's native language so that educational messages are fully understood[26].

In short different people are affected differently by asthma, so patients, doctors, and other health care professionals need to work together to develop an individualized treatment plan. A good plan will focus on determining the severity of a patient's asthma, identifying things that make a patient's asthma worse (triggers), monitoring lung function, and understanding the use of asthma medications.

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