

To Determine the Frequency of Various Factors Leading to Uncontrolled Asthma in Asthmatic Population (>16 Years of Age)

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ABSTRACT

Objective: To determine the frequency of various factors leading to un-controlled asthma in our asthmatics population (> 16 years of age). **Study Design:** Cross-sectional survey. **Setting:** Indoor and out-patient clinics of Department of Pulmonology of Jinnah Hospital, Lahore. **Duration:** Study was carried out over a period of six months from 27-08-2014 to 26-02-2015. **Sample Size:** Total 120 cases of uncontrolled bronchial asthma were included in this study. **Methodology:** Total 120 cases of uncontrolled bronchial asthma were included in this study. Upon presentation, each patient was asked for general questionnaire. **Results:** According to distribution of cases by age, majority of the patients 29.0% were between 21-30 years and minim 11.5% cases were more than 50 years of age with mean age of 33.5±4.1 years. Out of 120 patients, 81 cases (67.5%) were male and remaining 39 patients (32.5%) were female. Regarding factors leading to uncontrolled asthma, 32 (26.6%) patients used alternative medicine, 16 (13.3%) patients used oral medication, 59 (49.1%) patients used inhaler improperly while poor compliance was found to be in 63 (52.5%) patients. **Conclusion:** Self-monitoring and subsequent treatment adjustment on weekly basis can leads to improved asthma control in patients with uncontrolled asthma at baseline.

Keywords: Uncontrolled asthma, Inhaler technique, Use of oral medication, Poor compliance, Use of alternative medicine

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INTRODUCTION

Asthma is a serious public health problem and is the most common chronic respiratory disease affecting people of all ages. Prevalence of asthma is highly variable worldwide. Its estimated global prevalence is 8-16%.¹

Epidemiology studies have confirmed that recently there is an increase in asthma symptoms prevalence all over the world.² Unfortunately very little data is available from Pakistan. According to Global Initiative for Asthma (GINA), prevalence of asthma in Pakistan is 4-5%.³ A study conducted at Aga Khan Hospital shows a prevalence of uncontrolled asthma in patients attending OPD about 63%.⁴

There are other factors, besides exposure to triggers and concomitant rhinitis that is equally important contributors to uncontrolled asthma. One such factor is not using allopathic as standard therapy. In one study 25% of asthmatics were using alternative medicine (Herbal and homeopathy medication) despite no scientifically based efficacy of treatment.⁸ Inhaler use and technique is another important factor. It was observed that 48.5% were not using inhaler properly with 12.6% using oral medication

(oral xanthenes steroids) instead of inhaler therapy which is corner stone of current asthma treatment.⁷ Non-compliance about medication is another factor present in about 50% in asthmatics.⁹ Psychological fears about medication side effects are also prevalent in about 14.2%, thus compromising regular medication use.¹⁰ Survey conducted in India showed 34.7% of population earn less than 1 US\$ per day. It require more than 7 US\$ to purchase a standard regimen highlighting cost a major hindrance in achieving good control.¹¹ Thus it is reasonable to assume that majority of asthmatics have to live without medication. In South Africa only 15% of poorest people have assess for treatment of their chronic ailment including asthma.¹¹ Children with asthma who were exposed to smoking have difficult to control asthma.⁵ One study show 3.6% of asthmatics still smokes making asthma difficult to control.⁷

The goal of asthma treatment is that patient should experience no or minimal symptoms. When uncontrolled, asthma can place very severe restrictions on daily activities and also causes significant psychological stress.⁶ Absence from school days and lost from work are reported as a

substantial social and economic consequences of asthma.⁶

Health care systems differ throughout the world; the relative importance of factors associated with asthma control is likely to vary among different countries. The understanding of these factors from studies with our country can aid in the development of a rational approach to the allocation of resources aimed at obtaining asthma control and reducing the morbidity of this disease and the economic burden it entails. By identifying various common factor only then we can achieve better asthma control by educating the patients, thus improving the quality of life our patients. This will also reduce the personal and national economic burden as there will be less loss of working days and reduced unnecessary visit to emergency department, thus saving time and money. This is probably need of the hour considering our current economic situation.

OBJECTIVE

To determine the frequency of various factors leading to un-controlled asthma in our asthmatics population (> 16 years of age).

operational definitions

Uncontrolled Asthma

An uncontrolled asthma is defined if three or more the following features are present in an asthmatic patient the last four weeks.³

1. Day time symptoms more than twice per week
2. Any limitation of activity due to asthma symptoms
3. Any nocturnal asthma symptoms or awakening
4. Need for reliever inhalers/medications more than twice per week.
5. FEV₁ < 80% of predicted value.
6. On or more exacerbation in any of the last 4 weeks.

Factors Leading to Uncontrolled Asthma

1. Use of alternative medicine: If the patient is using alternative medication i.e. hakeem or homeopathic) for asthma control for the last 3 months.

2. Use of oral medications: Oral medication as treatment medication

3. Improper Inhaler technique: Six steps include shaking, correct holding tight lips around inhaler, single press, sudden inhalation, holding breath. Any one step missing taking improper technique.

4. Poor compliance: Missed four or more dosages of prescribed inhalers in last one month are labeled as poor compliance.

METHODOLOGY

Study Design: Cross-sectional survey.

Setting: Indoor and out-patient clinics of Department of Pulmonology of Jinnah Hospital, Lahore.

Duration of study: Study was carried out over a period of six months from 27-08-2014 to 26-02-2015.

Sample size: The calculated sample size is 120 cases, with 6% margin of error, 95% confidence level taking expected percentage of oral medication i.e. 12.6% in patients of uncontrolled asthma.

Sampling technique: Non-probability purposive sampling.

Sample selection:

Inclusion Criteria

- Both genders
- Patients > 16 years of age
- Case of uncontrolled bronchial asthma as per operational definition.

Exclusion Criteria

X-ray chest suggestive of acute pulmonary pathology e.g. pneumonia, pneumothorax.

RESULTS

Present study was carried out over a study period of six months from 27-08-2010 to 26-02-2011 in indoor and out-patient clinics of Department of Pulmonology of Jinnah Hospital, Lahore.

According to distribution of cases by age, majority of the patients 35 (29.0%) were between 21-30 years and minim 14 (11.5%) cases were more than 50 years of age with mean age of 33.5±4.1 years (Table-1).

Table 1: Distribution of cases by age (n = 120)

Age (Year)	Number	Percentage
< 20	17	14.6
21-30	35	29.0
31-40	31	25.8
41-50	23	19.1
> 50	14	11.5
Total	120	100.0
Mean±SD	33.5±4.1	

Out of 120 patients, 81 cases (67.5%) were male and remaining 39 patients (32.5%) were female (Table-2).

Table 2: Distribution of cases by gender (n = 120)

Gender	Number	Percentage
Male	81	67.5
Female	39	32.5
Total	120	100.0

Regarding factors leading to uncontrolled asthma, 32 (26.6%) patients used alternative medicine, 16 (13.3%) patients used oral medication, 59 (49.1%) patients used inhaler improperly while poor compliance was found to be in 63 (52.5%) patients (Table-3).

Table 3: Factors leading to uncontrolled asthma (n = 120)

Factors	Number	%age
Use of alternative medicine	32	26.6
Use of oral medication	16	13.3
Inhaler technique improper	59	49.1
Poor compliance	63	52.5

DISCUSSION

Uncontrolled asthma symptoms not only affect physically but can impair them socially, emotionally, and educationally. However, the impact of asthma in children extends to their caregivers and families, who face the burden of care and impact on lifestyle. Achieving optimal asthma control can reduce the impact of symptoms on the daily functioning.¹²

The effects of uncontrolled asthma on the caregiver extend beyond the social and emotional impact. Among employed caregivers, work productivity impairment was significantly greater among parents of children with uncontrolled asthma. Compared with employed caregivers of children with controlled asthma, employed caregivers of children with uncontrolled asthma had an additional 10.2% overall work productivity impairment. This difference amounts to an average cost of \$3,511 in estimated annual incremental costs above that seen in employed caregivers of children with controlled asthma. Findings from this study suggest that children with uncontrolled asthma are far more likely to experience asthma-related nighttime awakenings, and it is not at all unlikely that their caregivers too are awakened more often at night. This could be a driving factor in impaired work performance the next day. With decreased overall productivity and the concerns of caring for their child, issues of job security may also be of concern for parents.¹²

Population surveys have shown that despite the availability of highly effective pharmacotherapy, the majority (up to 70%–95%) of all asthma patients in western Europe and the Asia-Pacific region have signs of poor asthma control.¹³ Known causes of this suboptimal level of asthma control are poor adherence to periodic management visits to health care professionals¹⁴ or insufficient compliance with prescribed asthma medication, especially inhaled corticosteroids.¹⁵

In addition, patients with asthma—and their physicians—tend to overestimate their level of asthma control.¹⁶ These factors emphasize the need to improve the identification of poor asthma control and subsequent treatment. Because the majority of patients with asthma are treated by family physicians, family practice would be the most appropriate setting to study the tracing of patients with poor asthma control.

A main goal in the management of asthma is to achieve optimal control of respiratory symptoms, but recent surveys show that there is considerable room for improvement with regard to the level of asthma control in the general population.¹³ As best we could determine, no other studies have attempted to identify patients with poor asthma symptom control in a primary care setting with the aid of a simple method.

In present study, 26.6% patients used alternative medicine, 13.3% patients used oral medication, 49.1% patients used inhaler improperly while poor compliance was found to be in 52.5% patients.

Findings of this study are comparable with following studies. Oshikoya et al demonstrated that alternative medicine used by 25% of asthmatics,⁸ Dalcin et al reported that 48.5% were not using inhaler properly.⁷ Non-compliance about medication is another factor present in about 50% in asthmatics by.⁹

Recent international guidelines define asthma control in terms of two domains: impairment and risk. The distinction between these two domains for assessing asthma control emphasizes the need to consider separately patients' functional capacity on an ongoing basis in the present and the risks for adverse events, such as side effects of medication, progressive lung function loss or exacerbations in the future.¹⁷

The prevalence of uncontrolled and controlled asthma, and the factors associated with uncontrolled asthma were investigated in a cross-sectional study with confirmed asthma diagnosis were recruited from the outpatient asthma clinic. They underwent an evaluation by a general questionnaire, an asthma control questionnaire (based on the 2006 Global Initiative for Asthma guidelines), assessment of inhaled device technique and pulmonary function tests. Asthma was controlled in 48 of 275 patients (17.5%), partly controlled in 74 (26.9%) and uncontrolled in 153 (55.6%). In the univariate analysis, asthma severity was associated with asthma control (P-value <0.001). Availability of asthma medications was associated with asthma control (P = 0.01), so that most patients who could purchase medications had controlled asthma, while patients who depend on the public health system for

access to medications had lower rates of controlled asthma. The use of inhaled corticosteroid was lower in the uncontrolled group (P-value <0.001).⁷

CONCLUSION

Weekly self-monitoring and subsequent treatment adjustment leads to improved asthma control in patients with uncontrolled asthma at baseline and tailors asthma medication to individual patients' needs. Future asthma treatment strategies should incorporate continuous self-monitoring with use of a short validated questionnaire on asthma control.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

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