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Research Article

CAUSES OF UNCONTROLLED ASTHMA: A CROSS-SECTIONAL STUDYDr. Mariam Nissa Ullah¹, Dr. Rida Tahir¹, Dr. Maryam Safdar²¹ Wah Medical College Wah Cantt, Pakistan² THQ Hospital Chishtian, Pakistan**Article Received:** November 2019 **Accepted:** December 2019 **Published:** January 2020**Abstract:**

Objective: To determine the frequency of various factors leading to un-controlled asthma in our asthmatic's population (> 16 years of age).

Study Design: Cross-sectional survey.

Place and Duration: Study was carried out at indoor and out-patient clinics of department of Pulmonology of Nishtar Hospital, Multan for a duration of one year starting from October, 2018 to September, 2019.

Methodology: Total 120 cases of uncontrolled bronchial asthma were included in this study. Upon presentation, each patient was asked for general questionnaire. Non-probability purposive sampling technique was used. Included both genders having the age of more than 16 years and having case of uncontrolled bronchial asthma. Excluded all those who were having x-ray chest suggestive of acute pulmonary pathology e.g. pneumonia, pneumothorax.

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. [5,6] One such factor is not using allopathic as standard therapy. 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 xanthene steroids) instead of inhaler therapy which is corner stone of current asthma treatment. [7] In one study 25% of asthmatics were using alternative medicine (Herbal and homeopathy medication) despite no scientifically based efficacy of treatment. [8]

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 requires 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 must live without medication. In South Africa only 15% of poorest people have access 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 shows 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 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.

METHODOLOGY:

This cross-sectional study was held at indoor and out-patient clinics of Department of Pulmonology of Nishtar Hospital, Multan for a duration of one year starting from October, 2018 to September, 2019. 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.

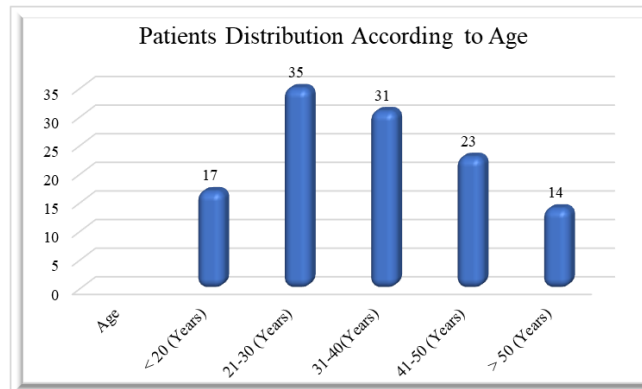
Non-probability purposive sampling technique was used. Included both genders having the age of more than 16 years and having case of uncontrolled bronchial asthma. Excluded all those who were having x-ray chest suggestive of acute pulmonary pathology e.g. pneumonia, pneumothorax.

RESULTS:

Present study was carried out over a study period of 12 months from October, 2018 to September, 2019 in indoor and out-patient clinics of Department of Pulmonology of Nishtar Hospital, Multan. 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 No 01: Distribution of Cases by Age

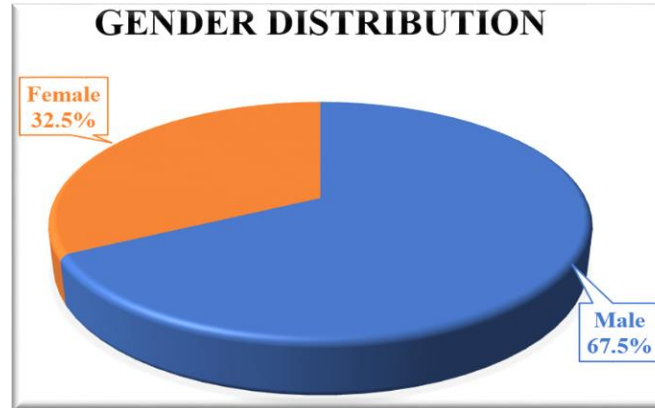
Age (Year)	Qty	%age
< 20	17	14.6%
21-30	35	29.0%
31-40	31	25.8%
41-50	23	19.1%
> 50	14	11.5%
Total	120	100%
Mean±SD	33.5±4.1 (Years)	



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

Table No 02: Distribution of Cases by Gender

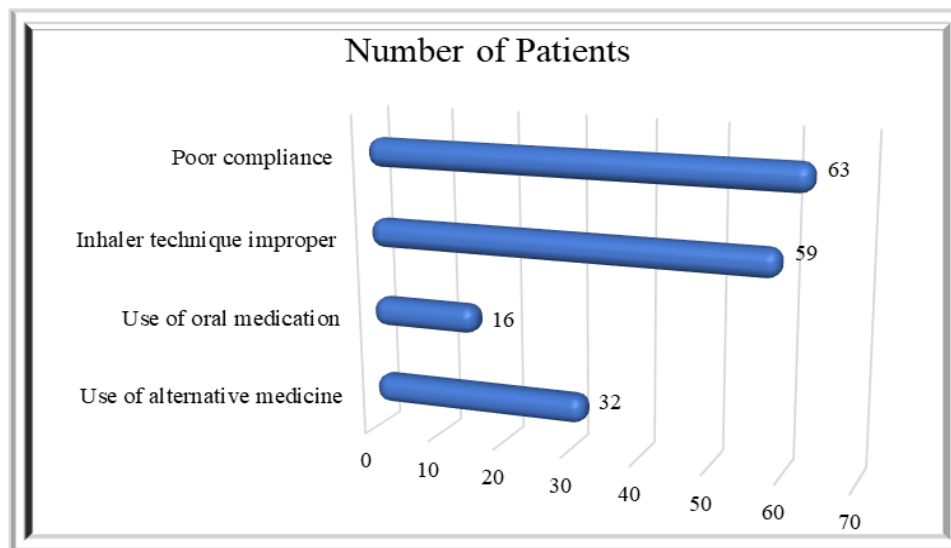
Gender	Qty	%age
Male	81	67.5%
Female	39	32.5%
Total	120	100%



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 No 03: Factors Leading to Uncontrolled Asthma

Factors	Qty	%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 professionals [14] 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 most 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 tailor's 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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