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A Study on Persitent Asthma, Acute Exacerbations And Its Triggering Factors.

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Abstract: *Asthma is defined by airway inflammation, completely or partly reversible airway obstruction and bronchial hyper-responsiveness which collectively induce cough, dyspnoea and wheeze in the affected patient. Persistent asthma was considered to be that requiring scheduled daily maintenance treatment with an anti-inflammatory drug (corticosteroid), in addition to a bronchodilator to relieve symptoms. Acute exacerbation is defined as an episode that required emergency visit for symptoms despite on maintenance therapy.The objective of this study was to evaluate the moderate persistent asthma, acute exacerbations and triggering factors causing it. This study concludes that attention should be paid to modifiable risk factors, such as adherence to maintenance phase treatment and avoiding exposure to known triggering factors needs to be focussed so that control of this condition can be improved in the long term.*

Manuscript :

I. Introduction

Asthma is defined by airway inflammation, completely or partly reversible airway obstruction and bronchial hyper-responsiveness which collectively induce cough, dyspnoea and wheeze in the affected patient. The prevalence of asthma increased during the second half of the 20th century, (1,2). However the worldwide prevalence of childhood asthma seems to have reached a plateau during the two last decades (3). In an ideal situation, asthma should be suspected in a child with symptoms of airflow obstruction, and a spirometry should be performed to verify the diagnosis (4).The goal of pediatric asthma treatment is to enable the children to control their symptoms, to be able to lead a normal active life, to have a normal lung function as well as prevent asthma exacerbations (5). A stepwise therapeutic approach isapplied to adjust medications according to symptoms and several guidelines have been published to support the physician in these treatment decisions.

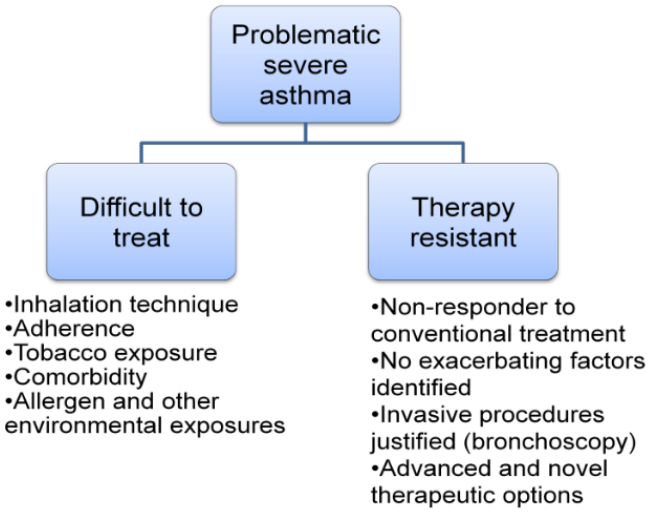

Fig 1 : Clinical classification of children presenting with persistent asthma (6)

Figure 1 represents the clinico-aetiological classification of children with persistent asthma who commonly presents with acute exacerbations to emergency. Given its harmful effects, including reduced quality of life, reduced physical activity, loss of work or school hours, need to attend the emergency room, and admission to a hospital, the main objective of treatment is to provide tailored control for each patient to prevent such acute exacerbations and remissions.

Physicians have traditionally relied on clinical parameters (e.g., wheezing, cough, nighttime arousals, exacerbations) and functional parameters to ascertain the degree of control among their patients. Nevertheless, there is increasing interest in evaluating other variables provided by patients themselves, and this has led to the development of several questionnaires. One of these is the Asthma Control Questionnaire (ACQ) (7), a practical validated instrument that is used more and more often in many countries, not only in clinical trials, but also in daily clinical practice. It provides information on different aspects of the disease from the patient's perspective and makes it possible to evaluate factors that may be associated with control of asthma.
The objective of this study was to evaluate the moderate persistent asthma, acute exacerbations and triggering factors causing it.

II. Methodology

All the children from 2 to 12 years who were known case of persistent asthma on treatment at our institute were followed from 2010 till date. Socio demographic profile of the patients along with no of episodes of acute exacerbations and the triggering factors were documented by taking history from the informants. Clinical variables collected included a history of number of admissions due to asthma during the last year before the start of inclusion in to the study, classification of severity and medication used for asthma during the month before the start of the study. Children were followed for a minimum period of 4 years on monthly basis initially for 6 months and every 3 months for the rest of follow up period. Persistent asthma was considered to be that requiring scheduled daily maintenance treatment with an anti-inflammatory drug (corticosteroid), in addition to a bronchodilator to relieve symptoms. Acute exacerbation is defined as an episode that required emergency visit for symptoms despite on maintenance therapy. Trigger factors for exacerbation were documented for each visit.

III. Results

A total of 144 children with a mean age of 7.2 years (2.4-11 years) were enrolled in the study. Of them 82 (57%) were male and 62 (43%) were females in the group. When asthma was classified according to severity, 44.4% of patients had mild persistent asthma, 49.2% had moderate persistent asthma, and the rest had severe persistent asthma. During the previous 12 months, 69.4% of patients had experienced at least 1 severe exacerbation, with the number of these events during the last year being 1.7 ± 2.1. Regarding admissions to the hospital, 27.5% of patients had been hospitalised one or more times because of an exacerbation of their asthma during the previous 12 months. The mean number of hospitalisations due to asthma during the previous year was 0.7 ± 1.3.The mean number of times per week the study patients took short-acting inhaled β2-adrenergic agonists was 9.3 ± 10.9 times. 52.3% of patients took these drugs between 1 and 5 times per week. Regarding maintenance treatment during the previous month, 2.5% of patients received a long- acting inhaled β2 - adrenergic agonist, 1.4% were receiving inhaled corticosteroids, 5.74% received inhaled corticosteroids combined with short-acting inhaled β2-adrenergic agonists, and 87.8% used a combination of long-acting inhaled β2- adrenergic agonists and corticosteroids. In 89.4% of cases, the combination of the latter two drugs was taken in a single device. Most common trigger factor for the acute exacerbation was non compliance in taking maintenance phase of therapy (74%) and exposure to the antigen or cool breeze in rest of the cases.

IV. Discussion

Our findings confirm the existence of a high number of children with inadequate control of their asthma. Previous studies have found similar results, despite the possible differences between them concerning the definition of control (8-11).The existence of asthma-associated comorbidity may also affect disease control. Control of asthma can be affected by allergic rhinitis, gastroesophageal reflux, seasonal variations (12), episodes of atmospheric pollution, psychosocial alterations, hormonal abnormalities, and the use of inappropriate medication (13). However, these factors were not evaluated in our study.

We can conclude by stating that, at present, many asthma patients have poor control of their condition. Some of the factors that have proven to be determinant in controlling asthma, e.g., severity, sex, or socio economic status, cannot be modified by the treating physicians. Nevertheless, adequate health education can help to identify patients with a higher risk of presenting a poor outcome and to establish more intensive treatment and closer monitoring to reach suitable control of the disease. Attention should also be paid to modifiable risk factors, such as adherence to maintenance phase treatment and avoiding exposure to known triggering factors needs to be focussed so that control of this condition can be improved in the long term.

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