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Clinical Manifestations and Treatment of Ashtma

Anjali Chauhan[1], Anshipriya[2], Simrat Kaur[3], S P Subashini[4]

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Abstract

The most frequent chronic respiratory condition is asthma. Despite substantial advancements in asthma diagnosis and care the majority of Indians with asthma continue to have poor control. Control can be achieved in the majority bof individuals, however with the use of avoidance strategies and suitable medications therapies. For the vast majority of patients, imhaled corticosteroids (ICS) constitute the standard of therapy. Most individuals who fails to establish control with ICS medication prefer combination ICS/ long acting beta2 - agonists inhalers. Biologic medicines that target immunoglobulin E or interleukin 5 have just recently been added to the asthma therapy arsenal, although they may be useful in certain cases of difficult to control asthma. Allergen specific immunotherapy has the potential to be a disease modifying therapy for many asthma patients, but it should only be recommended by allergy specialists. Regular monitoring of asthma control using objective testing methods such as Spirometry, if possible are key components of asthma care, in addition to avoidance tactics and medicines. Whenever possible; writing asthma action plans; monitoring treatment obstacles and therapy adherence ; and reviewing inhaler device technique. This article contains an overview of current evidence as well as guidelines for diagnosing and treating asthma in adults and children.

Keywords: Clinical Manifestations; Immunoglobulin; Bronchodilator medications; Pharmacological.

Introduction

Asthma is a chronic, non communicable disease, that affect both children and adults. Asthma symptoms are caused by inflammation and narrowing of the tiny airways in the lungs, which can include any combination of cough, wheeze shortness of breath and chest tightness.

In india, asthma affected an estimated 262 million individuals and resulted in 461000 deaths. Asthma symptoms can be controlled with inhaled medication, allowing patients with asthma to live a normal, active life. The majority of ashtma related deaths occur in low lower middle income nation, where diagnosis and treatment are difficulty to come by. Asthma is caused by complex gene-environment interactions, resulting in heterogeneity in clinical presentation as well as the kind and severity of airway inflammation and remodeling. The goal of asthma treatment is to achieve control, or to reduce the severity of symptoms and the risk of exacerbations. The mainstay of asthma treatment is anti inflammatory and bronchodilator medications, which are taken in a stepwise manner. Pharmacological treatment is centred on a cycle of assessment and re-evaluation by mens of shared judgements of symptoms control, risk factors, co-morbidities, side effects and patients satisfaction. Asthma is classified as severe when it requires high intensity treatment to keep it under control or when it does not respond to treatment. New biological therapeutics for the treatment of severe asthma, together with advances in biomarkers, open the door to phenotype specific interventions and more personalised treatment. We present a

Author Affiliation: [1-2]Students, [3]Associate Professor, [4]Dean, Department of Medical Surgical Nursing, Dean School of Nursing, Galgotias University, Greater Noida, Gautam Buddh Nagar 201307 Uttar Pradesh, India.
Corresponding Author: Simrat Kaur, Associate Professor, Department of Medical Surgical Nursing, Dean School of Nursing, Galgotias University, Greater Noida, Gautam Buddh Nagar 201307 Uttar Pradesh, India.
E-mail: simratkaur@galgotiasuniversity.edu.in
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clinically oriented overview of asthma in adults and children older than 5 years, encompassing epidemiology, Pathophysiology, clinical diagnosis, asthma phenotypes, severe asthama, acute exacerbations, and therapeutic management bof disease. Im addition, new therapies, controversies, and unknown in asthma care are reviewed.

Etiology

Asthma is a term that refers to a group of disorders with a wide range of characteristics. A genetic susceptibility to asthma, specifically a personal or family history of atopy, is one of the identified reasons (propensity to allergy, usually seen as eczema, hay fever, and the ashthma).

Exposure to cigarette smoke and other inflammatory chemicals and particulates has also been linked to ashthma.

The overall etiology is complex and still unknown particularly when it comes to predicting which children with paediatric asthma will develop asthma as adults (upto 40% of children have a wheeze, but only 1% of adults have asthma), but it is agreed that asthma is a multifactorial pathology influenced by both genetics and environmental exposure.

Triggers for Asthma Include

- Viral respiratory tract infections
- Exercise
- Gastroesophageal reflux disease
- Chronic sinusitis
- Environmental allergens
- Use of aspirin, beta blockers
- Tobacco smoke
- Insects, plants, chemical fumes
- Obesity l
- Emotional factors or stress

Epidemiology

Asthma is a prevalent disease that affect approximately 15 person to 20% of persons in affluent countries and 2% of 4% of people in less developed countries. It is far more prevalent in children. Regardless of lung function testing, upto 40% children will develop a wheeze at some point, which if reversible with beta-2 agonists, is diagnosed as asthma. Asthma is linked to cigarette smoke to these substances.

Asthma is common in boys in childhood, with a male to female ratio of 2:1 until puberty, when the ratio drops to 1:1. Females bare more likely to develop asthma after puberty, and adult onset cases after, the age of 40 are primarily females. Due to airway reactivity and lesser levels of lung function, asthma prevalence is higher at extreme ages.

Approximately 66 % of ashthma cases are detected before the ages of 18. During early adulthood, over half of children with asthma have a reduction in severity or complete cessation of symptoms.

Pathophysiology

Asthma is a disorder characterized by acute, entirely reversible airway inflammation, which often occurs as a result bof exposure bto a trigger. The pathogenic process starts with the inhalation of an irritant (such as cold air) or allergen (such as pollen), which causes airway inflammation and increased mucus production due to bronchial hypersensitivity. This causes a large increase in airway resistance, which is most noticeable when you exhale.

The following Factors can Cause Airway Obstruction

- Infiltration of inflammatory cells.
- Hypersecretion of mucus with the development of mucus plugs.
- Contraction of smooth muscle

Due to Time, these Irreversible Alterations may become Irrevocable

- basement membrane thickening, collagen deposition, and epithelial desquamation are all symptoms of basement membrane thickening.
- smooth muscle hypertrophy and hyperplasia cause airway remodeling nin chronic illness.

Asthma may become more difficult to treat if not treated quickly, because mucus production inhibits inhaled medication from reaching the mucosa. Edema develop when the inflammation worsens. Beta-2 agonists (e.g., salbutamol, salmetrol, albuterol) and muscrainic and relax the bronchial muscle, as well as mucus production.

Signs and Symptoms

Signs and Symptoms of Asthma may Include

- Chest tightness

- Coughing, especially at night or early morning
- Shortness of breath
- Wheezing, which causes a whistling sound when you exhale

While other conditions can cause the same symptoms as asthma, the pattern of symptoms in people who have asthma usually has some of the following characteristics.

- They come and go over time or within the same day.
- They start or get worse with viral infections, such as a cold.
- They are triggered by exercise, allergies, cold air, or hyperventilation from laughing or crying.
- They are worse at night or in the morning.

Treatment / Management

Conservative Measures

Calming the patient to get them to relax, moving outside or away from the likely source of allergen, and cooling the person are all things to consider. It is sometimes done to remove allergies by removing clothing and the washing the face, but this is not supported by evidence.

If one wants to avoid recurrent episodes, environmental control is essential. Avoiding allergens can greatly improve one's quality of life. Tobacco, dust mites, animals and pollen should all be avoided.

Obese asthmatica can improve their control by losing weight. Immunotherapy for allergens is still contentious. Large scale trials have found no substantial benefits, and the procedure is excessively expensive.

Patients with moderate to severe asthma who have a positive skin test should monoclonal antibody therapy. The procedure can help you lose weight.

Allergen immunotherapy remains controversial. Large studies have not shown any significant benefit, and the technique is prohibitively expensive. The therapy can lower igE levels, lowering histamine production as a result. However, the injection are expensive. Bronchial thermoplasty is a relatively recent treatment for reducing airway constriction by delivering heat energy to the airway wall. Several studies have shown that it can minimize emergency room visits and school days missed.

Medical

Bronchodilators such as beta-2 agonist and muscarinic antagonists (salbutamol and ipratropium bromide, respectively) as well as anti-inflammatories such as inhaled steriods are used im medical treatment.

High flow oxygen inhalation, systemic steriods, back to back nebulizations with short acting beta 2 agonists band short acting muscarinic antagonists, and intravenous magnesium sulphate are used to treat patients with life threatening asthma. The consultation of the critical care team early in the process helps to reduce mortality. Early incubation and mechanical ventilation are required in the case of near fatal asthma.

Surgical

Surgical intervention is not used in the treatment of normal asthma.

Long-Term/Other

Weight loss, quitting smoking, changing jobs and self monitoring are all beneficial in preventing disease progression and reducing the number of acute attacks.

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