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## **Bronchial Asthma management and Prophylaxis**

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## **Abstract**

Asthma is a common disease worldwide with significant ethnic and regional variations. An increasing morbidity and mortality, as well as health care burden from asthma have been recognized lately. Several evidence based guidelines have been developed with an aim to standardize and improve the quality of management. These guidelines seek to translate the advances in the understanding of pathogenesis of asthma and in the development of new agents and strategies into practical application at all levels of healthcare. Aim between management and Prophylaxis of the asthma

## **Introduction**

Bronchial asthma is a chronic inflammatory disorder of the airways associated with airway hyper responsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing particularly at night or in the early morning. These episodes are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment. However the prevalence of asthma worldwide is around 200 million with a mortality of around 0.2 million per year.[1] The estimated burden of asthma in India is more than 15 million. The population prevalence of asthma reported in different field studies and specific population group is reported to be variable. Onset of asthma can occur at any age, but children and young adults are commonly affected. Although asthma can't be cured, clinical episode can be prevented and controlled by proper management. The exact cause of asthma is not known. There are a variety of host and the environmental risk factors. The host factors are genetic predisposition, atopy, airway hyper responsiveness, gender and race/ethnicity. The environmental risk factors are indoor and outdoor allergens, occupational sensitizers, tobacco smoke and air pollution, respiratory infections, parasitic infections, socio economic factors, family size, diet, drugs and obesity. Numerous evidence based guidelines for diagnosis and management of bronchial asthma are available throughout the world, because of the differences in the health care infrastructure, risk factors, disease pattern and prevalence. [2]

## **Discussion**

Severe persistent asthma Categorization of severity of asthma to: mild intermittent, and asthma, mild persistent asthma, moderate persistent asthma. The first one is Mild intermittent asthma: With mild intermittent asthma, the symptoms are mild. This classification means the symptoms up to two days per week or two nights per month. This asthma type will usually not hinder any activities and can include exercise-induced asthma, are the symptom of mild intermittent asthma wheezing or whistling

when breathing and coughing, swollen airways and development of mucus in the airways.[2]

The second one is Mild persistent where the symptoms are still mild but occur more than twice per week. For this type classification, you don't have symptoms more than once per day, are the symptom of Mild persistent Wheezing or whistling when breathing, coughing, and development of mucus in the airways.[2]

The third one is moderate persistent asthma with moderate persistent asthma the symptoms once each day, or most days. You will also have symptoms at least one night each week are the symptoms of Moderate persistent Wheezing or whistling when breathing and chest tightness or pain. [1]

The fourth one is severe persistent asthma if you have severe persistent asthma, the symptoms several times during the day. These symptoms will occur almost every day. You will also have symptoms many nights each week. Severe persistent asthma doesn't respond well to medications even when taken regularly are the symptoms of Severe persistent Wheezing or whistling sound when breathing.[1]

There is no permanent cure for asthma however the disorder can be adequately controlled with drugs. The optimal asthma control would include minimal chronic symptoms, minimal exacerbations. [2]

## **Prophylaxis and Control of asthma:**

1. Inhaled corticosteroids are many studies have shown that are the most effective medications for long-term asthma control, Inhaled corticosteroids making your airways less inflamed. This leads to less severe asthma symptoms and better lung function. The airways become less sensitive. Therefore, the risk of having an asthma attack is lower. You are less likely to need to visit the emergency department if you take inhaled corticosteroids; Inhaled corticosteroids are the backbone of asthma treatment for most adults and children with persistent asthma.
  - Inhaled corticosteroids usually work well for people with allergic asthma
  - Inhaled corticosteroids do not work as well for smokers or people who are obese. They are also less effective for some types of adult-onset asthma[1]
2. Long-acting beta agonists is Long-acting beta agonists relax the muscles that surround the airways. The effects last for up to 12 hours after taking a dose. Long-acting beta agonist is abbreviated LABA, LABAs are used together with inhaled corticosteroids. They are to treat people with moderate to severe asthma. LABAs reduce asthma symptoms, asthma attacks, and rescue medication use.1 they work well for people with exercise-induced asthma. For safety reasons LABAs cannot be used alone, 7 they must be used with another long-term control medication, such as inhaled corticosteroids. If a

low-dose or medium-dose inhaled corticosteroid is enough to control your asthma, you should not use a LABA. If you are taking a LABA, your health care provider may ask you to stop for a period of time. The goal of stopping is to see if your asthma stays controlled without it.[2]

Exacerbation of asthma is characterized by the worsening of symptoms with increase in dyspnoea, cough and wheeze. There is a decline in lung function, which can be quantitated with measurements of PEF or FEV1. The exacerbations are categorized as severe or non-severe. Severe exacerbation of asthma are characterized by increase in dyspnoea, with patient unable to complete one sentence in one breath (in children : interrupted feeding and agitation), respiratory rate > 30/minute, heart rate > 120/minute, use of accessory muscles of respiration, pulsus paradoxus > 25 mmHg, PEF < 60% personal best or < 100 litres/minute in adults, In children, the normal respiratory and pulse rates are different from adults and values exceeding normal limits should not be considered abnormal.[2]

Management of Non-Severe Exacerbations Patients with non-severe exacerbations can usually be managed on an outpatient basis, with repeated administration of rapid acting inhaled? 2 agonists (2 puffs every 20 minutes for the first hour), which is the best and most cost-effective method to achieve rapid reversal of airflow limitation. Oral glucocorticoids (1mg/kg prednisolone daily for 7-10 days) should be used in all but the mildest exacerbations as they significantly reduce the number of relapses and decreases beta-agonist use without an apparent increase in side effects. A rough guide is to use oral steroids if response to the rapid acting inhaled? 2 agonist alone is not prompt or sustained (PEF > 80% personal best) after one hour.[2]

Management of Severe Exacerbations Severe exacerbations of asthma can be life-threatening and should be managed as an emergency. After initial beta-agonist, ipratropium inhalation/nebulization, oxygen and one parenteral dose of steroids the patient should be referred to secondary/tertiary care center. The important points in the management of acute severe asthma are summarized below.[2]

1. Glucocorticoids are the mainstay of therapy and their use within an hour of presentation significantly reduces the need for hospital admission in patients with acute asthma. There is no advantage of parenteral over oral glucocorticoids except in few circumstances. There is also no advantage of a particular preparation of glucocorticoids in acute asthma, and a maximum dose of 40-60mg/day of prednisolone is given and continued for at least 7-10 days or until recovery.[1]

2. Inhaled corticosteroids have no added benefit when used in addition to oral steroids.[1]

## **Conclusion**

Asthma is an important chronic disease resulting in clinically significant morbidity, missed days of work or school, substantial costs for emergency care and hospitalization, and sometimes, death. Effective care of asthma requires comprehensive assessment, appropriate diagnosis using current criteria, development and implementation of a written plan of care, and evaluation of the client's response to treatment

## **References**

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- [2] S. K. Jindal, "Guidelines for Management of Bronchial Asthma in India at Primary and Secondary Levels of Health Care Fig 1. Algorithm for diagnosis and management of bronchial asthma at primary and secondary levels of health care," vol. i, pp. 2–3, 2004.