

## **Asthma**

Asthma is a long-term inflammatory disease of the airways of the lungs .It is characterized by variable and recurring symptoms, reversible airflow obstruction, and easily triggered bronchospasms. Symptoms include episodes of wheezing, coughing, chest tightness, and shortness of breath .These may occur a few times a day or a few times per week .Depending on the person, asthma symptoms may become worse at night or with exercise

Asthma is thought to be caused by a combination of genetic and environmental factors. Environmental factors include exposure to air pollution and allergens .Other potential triggers include medications such as aspirin and beta blockers. Diagnosis is usually based on the pattern of symptoms, response to therapy over time, and spirometry lung function testing

### **Symptoms**

Asthma is characterized by recurrent episodes of wheezing, shortness of breath, chest tightness, and coughing .Sputum may be produced from the lung by coughing but is often hard to bring up . During recovery from an asthma attack (exacerbation), it may appear pus-like due to high levels of white blood cells called eosinophils . Symptoms are usually worse at night and in the early morning or in response to exercise or cold air. Some people with asthma rarely experience symptoms, usually in

response to triggers, whereas others may react frequently and readily and experience persistent symptoms.

## Causes

Asthma is caused by a combination of complex and incompletely understood environmental and genetic interactions . These influence both its severity and its responsiveness to treatment . It is believed that the recent increased rates of asthma are due to changing epigenetics and a changing living environment . Asthma that starts before the age of 12 years old is more likely due to genetic influence, while onset after age 12 is more likely due to environmental influence

## Pathophysiology

Asthma is the result of chronic inflammation of the conducting zone of the airways (most especially the bronchi and bronchioles), which subsequently results in increased contractability of the surrounding smooth muscles. This among other factors leads to bouts of narrowing of the airway and the classic symptoms of wheezing. The narrowing is typically reversible with or without treatment. Occasionally the airways themselves change . Typical changes in the airways include an increase in eosinophils and thickening of the lamina reticularis . Chronically the airways' smooth muscle may increase in size along with an increase in the numbers of mucous glands. Other cell types involved include: T lymphocytes, macrophages, and neutrophils. There may also be

involvement of other components of the immune system including: cytokines, chemokines, histamine, and leukotrienes among others

## Diagnosis

While asthma is a well-recognized condition, there is not one universal agreed upon definition. It is defined by the Global Initiative for Asthma as "a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role. The chronic inflammation is 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 within the lung that is often reversible either spontaneously or with treatment.

## Treatment

Many asthma treatments can ease your symptoms. Your doctor will work with you to make an asthma action plan that will outline your treatment and medications. They might include:

Inhaled corticosteroids. These medications treat asthma in the long term. That means you'll take them every day to keep your asthma under control. They prevent and ease swelling inside your airways, and they may help your body make less mucus. You'll use a device called an inhaler to get the medicine into your lungs. Common inhaled corticosteroids include:

Beclomethasone (QVAR)

Budesonide (Pulmicort)

Fluticasone (Arnuity Ellipta, Armonair Respiclick, Flovent)