SNS COLLEGE OF ALLIED HEALTH SCIENCES

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai

DEPARTMENT OF PHYSICIAN ASSISSTANT

COURSE NAME:- PULMONOLOGY

TOPIC : BRONCHIAL ASTHMA

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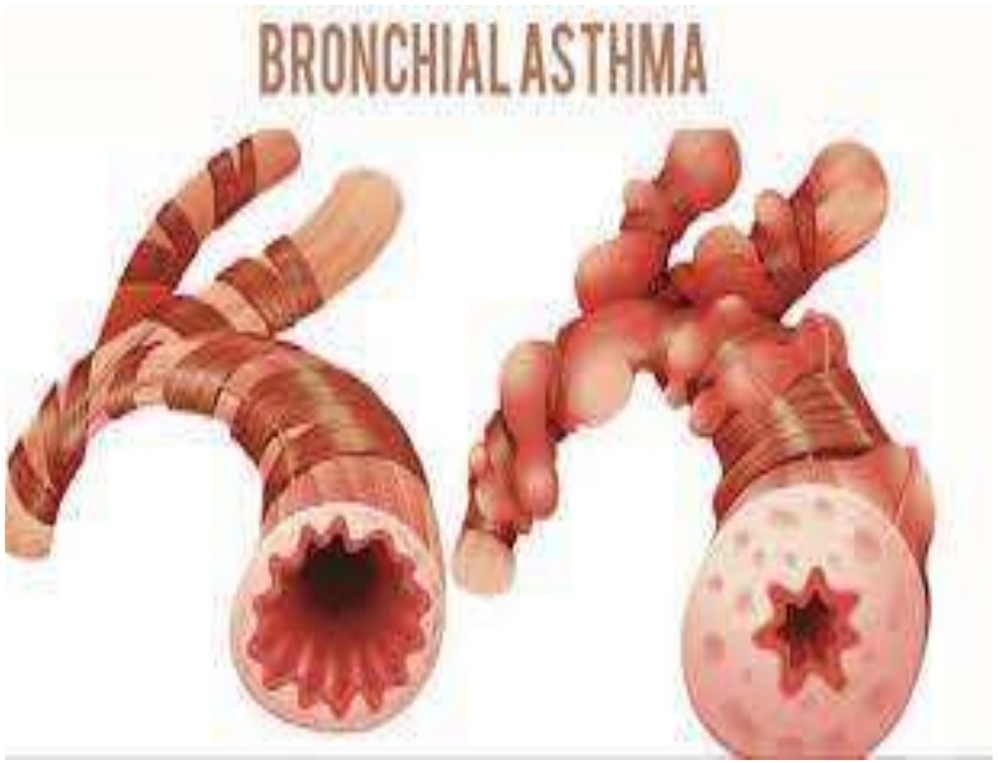
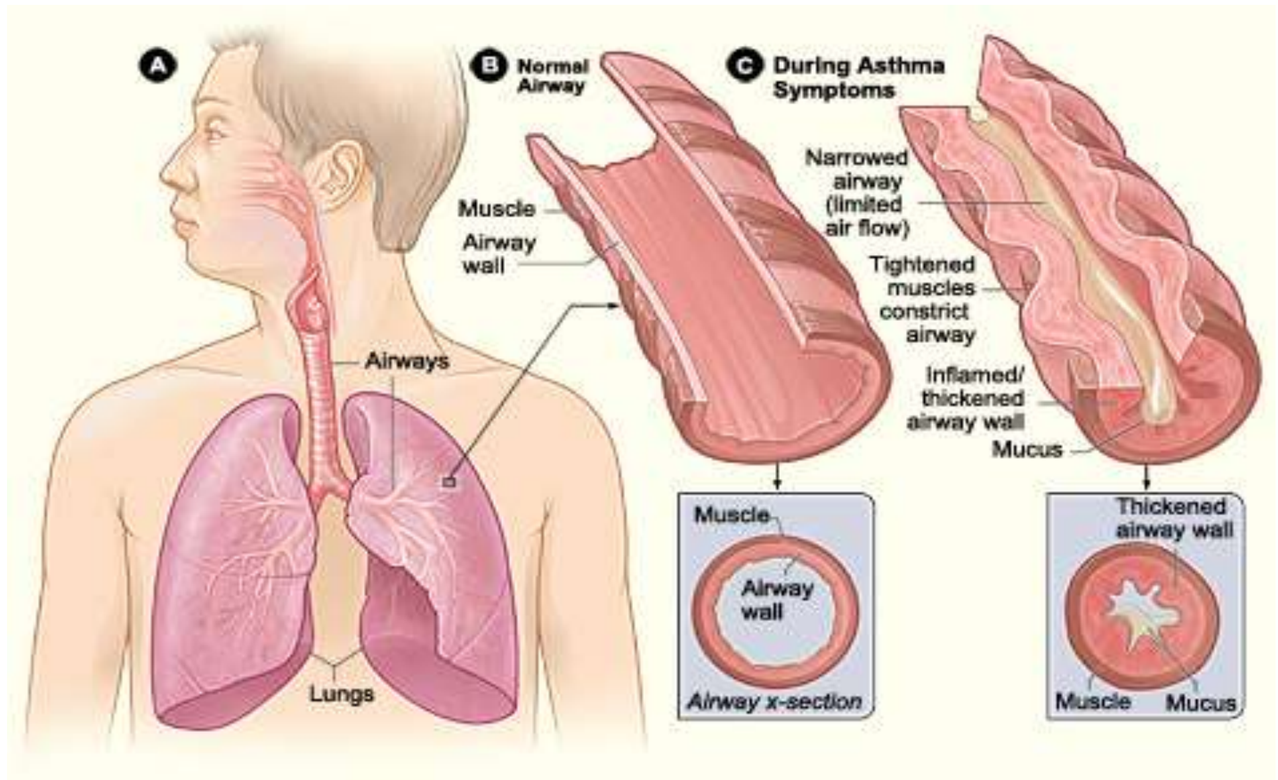
Introduction – Bronchial Asthma

- **Bronchial Asthma** is a chronic inflammatory diseases of the airways, characterized by airflow obstruction, bronchial hyperactivity and a mucous production.
- Most common asthma triggers of bronchial asthma are dust, animal dander, weather changes, pollution, mold, pollen, respiratory infections, stress, and tobacco smoke
- The **symptoms** of bronchial asthma include:

1. Dyspnea (difficulty in breathing),
2. Rapid respiration
3. Wheezy chest
4. Chest tightness
5. Acute broncho-constriction (immediate)
6. Croupy cough.

Bronchial Asthma





Prevalence

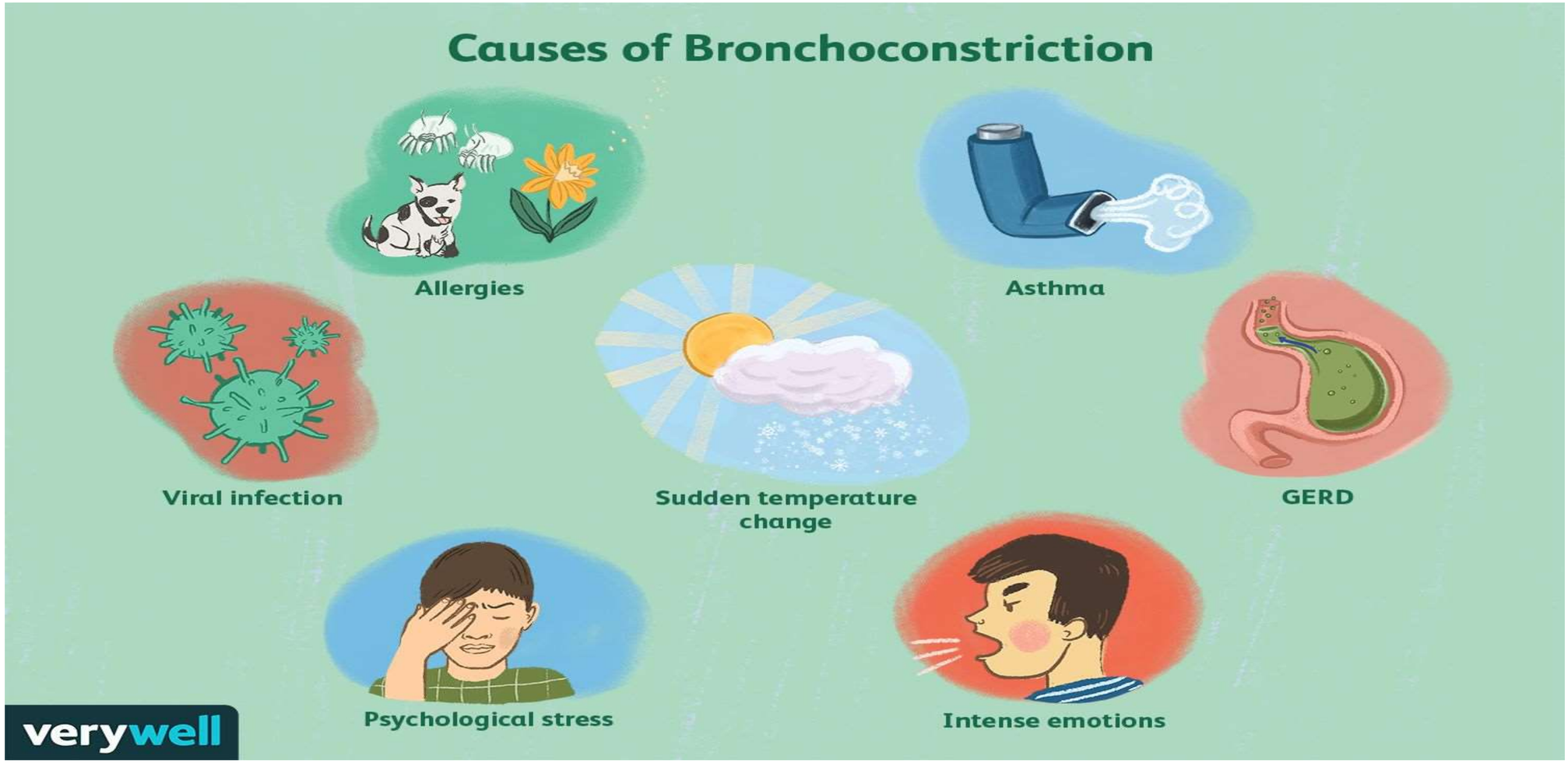
- It is the most common chronic disease currently affecting appx. 300 million people worldwide.
- 10- 12% of adults
- 15 % of children
- Most have periodic wheezing attacks separated by symptom- free period.
- Attacks can last minutes to days, and can become dangerous if the airflow becomes severely restricted.

ETIOLOGICAL FACTORS

Bronchial asthma is multifactorial. Some of it include :

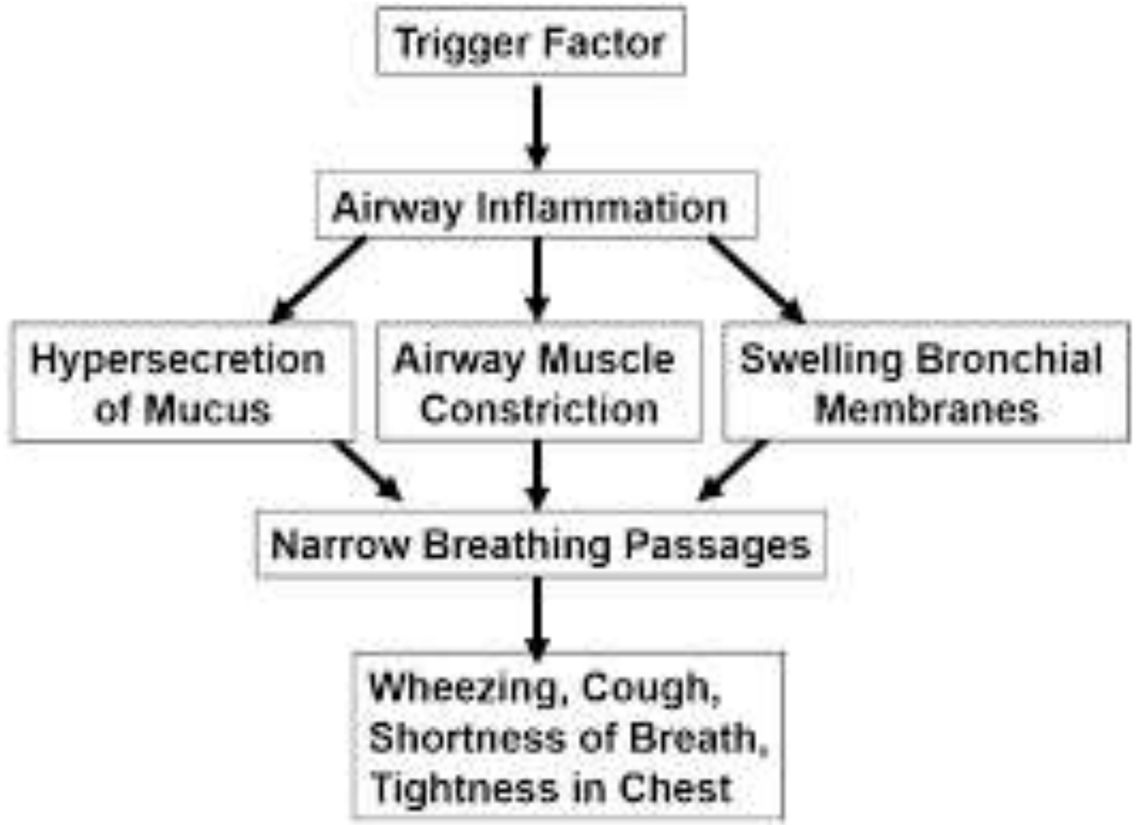
- Allergic to certain foreign substances
- Inhalation of pollen, wool, feather, animal hair, cotton, seeds, smoke, powder or dust
- Ingestion of foods like egg, some fish, meat, chocolate, etc.
- Respiratory Infections
- Worm Infections
- Change in climate
- Emotional disturbances due to stress, anxiety
- Excessive fatigue, exhaustion and exercise

CAUSES


Causes of Bronchoconstriction
Allergies
Asthma
Viral infection
Sudden temperature change
GERD
Psychological stress
Intense emotions
verywell

Pathogenesis

•As noted in the definition of asthma, airway inflammation involves an interaction of many cell types and multiple mediators with the airways that eventually results in the characteristic pathophysiological features of the disease: bronchial inflammation and airflow limitation that result in recurrent episodes of **cough, wheeze, and shortness of breath**



CLASSIFICATIONS

Asthma Classification

	Symptoms		≤5 years of age	>5 years of age	
	Daytime	Nighttime	Exercise tolerance	PEF or FEV1	PEF variability
Mild intermittent	≤2 per week	≤2 per month	Excellent tolerance	≥80%	<20%
Mild persistent	>2 per week, but <1 per day	>2 per month	Exercise symptoms	≥80%	20%-30%
Moderate persistent	Daily symptoms	>1 per week	Frequent exercise symptoms	60%-80%	>30%
Severe persistent	Continual day symptoms	Frequent night symptoms	Exercise severely limited	≤60%	>30%

Complication

The most common complication of bronchial asthma is **Emphysema.** Others include:

- Severe hypoxemia
- Cardiac arrhythmias
- Athelectasis
- Pneumothorex
- Cor Pulmonate
- Respiratory failure and congestive cardiac failure
- Psychological problems and prolonged use of steroids may complicate the condition.

DIAGNOSIS

•Diagnosis can be done by taking detailed history of patient especially for allergy, infections, foreign body aspiration and physical examination done thoroughly by Auscultation.

- Some of the **Hospital tests** for diagnosis of Bronchial Asthma include :

1. Pulmonary function test
2. Absolute eosinophil counts
3. Chest X-ray
4. Allergy test

Diagnosis of Asthma

Pulmonary Function Test

Testing or diagnosing of asthma is a combination of symptomatic evaluation and laboratory testing. It should be done by a qualified doctor. These tests may include:

- Spirometry
- Peak Expiratory Flow Rate (PEFR)
- Methacholine challenge or asthma trigger
- Chest X-ray
- Allergy testing or allergy trigger
- Nitric oxide test
- Sputum eosinophils
- Cold-induced or exercise-induced asthma testing

DIAGNOSIS

- You may be given lung function tests to determine how much air moves in and out as you breathe. These tests may include:

- **Spirometry.** This test estimates the narrowing of your bronchial tubes by checking how much air you can exhale after a deep breath and how fast you can breathe out.
- **Peak flow.** A peak flow meter is a simple device that measures how hard you can breathe out.

DIAGNOSIS

- **Methacholine challenge.** Methacholine is a known asthma trigger. When inhaled, it will cause your airways to narrow slightly. If you react to the methacholine, you likely have asthma. This test may be used even if your initial lung function test is normal.

- **Imaging tests.** A chest X-ray can help identify any structural abnormalities or diseases (such as infection) that can cause or aggravate breathing problems.

MANAGEMENT

- Medical management include medications, Chest physiotherapy, avoiding of allergens and irritants are important aspects of management.
- Drug Therapy – Promotes bronchodilation, reduce inflammation and removes bronchial secretions
- Drugs like
  1. Anticholinergenics
  2. Corticosteroids
  3. Methylxanthines
  4. Beta Adregenic agonists
  5. Leukotriene antagonists, etc.,

MANAGEMENT

- Mild tranquilizers to remove the anxiety and emotional stress
- Expectorants to remove excessive secretions
- Antibiotics to treat infections
- Oxygen therapy in severe respiratory distress and cyanosis
- IV Fluid therapy to maintain fluid electrolyte balance and to correct metabolic acidosis.
- Calm and quite environment to provide rest and supportive measures with good nursing care
- Comfortable sitting position to relief respiratory distress.

Drug Delivery

- **Inhaled Drug** formulations are the best form of therapy for asthma as they deliver the drug directly to the airways, bypassing the bloodstream.

How To Use An Inhaler

Drug Delivery

- **Nebulizers** are used in persons who cannot follow the inhaler technique properly or in seriously ill patients.
- It is a small machine that creates a mist out of liquid medication, allowing for quicker and easier absorption of medication into the lungs

THANK YOU