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 :- CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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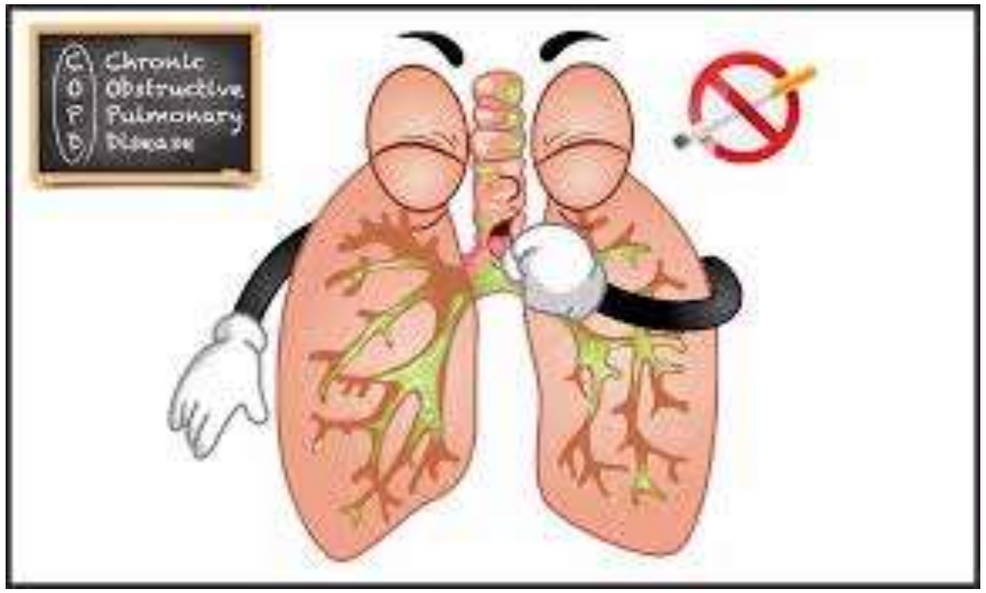
INTRODUCTION



- Chronic obstructive pulmonary disease (COPD) is a progressive lung disease that makes it difficult to breathe due to long-term exposure to irritants that damage the lungs, such as tobacco smoke, air pollution, and certain chemicals.
- COPD includes chronic bronchitis, characterized by a persistent cough and mucus production, and emphysema, characterized by the destruction of the air sacs in the lungs.
- COPD is a common and serious health condition that can lead to disability, frequent respiratory infections, and premature death if left untreated or poorly managed.

STATISTICS AND PREVALENCE

- COPD is the third leading cause of death globally, with an estimated 3.2 million deaths in 2019 (World Health Organization, 2021).
- In the United States, COPD is the third leading cause of death, with an estimated 155,000 deaths in 2019 (Centers for Disease Control and Prevention, 2021).
- COPD affects approximately 16.4 million adults in the United States (Centers for Disease Control and Prevention, 2021).
- COPD is more common in men than women, but women are catching up due to increased smoking rates in previous decades (American Lung Association, 2021).
- Smoking is the leading cause of COPD, accounting for about 80% of cases (American Lung Association, 2021).
- Exposure to air pollution and occupational dusts and chemicals also contribute to COPD development (American Lung Association, 2021).
- Early diagnosis and treatment of COPD can improve lung function, reduce symptoms, and prevent complications (American Lung Association, 2021).

CAUSES AND RISK FACTORS

A. Tobacco smoke (active and passive)

- Smoking cigarettes, cigars, or pipes
- Exposure to secondhand smoke (passive smoking)
- Smoking marijuana or other substances that are smoked

CAUSES AND RISK FACTORS

B. Air pollution

- Exposure to outdoor air pollution (e.g., particulate matter, ozone)

- Exposure to indoor air pollution (e.g., cooking fumes, wood smoke)

CAUSES AND RISK FACTORS

C. Exposure to occupational dusts and chemicals

- Exposure to dusts and fumes in the workplace (e.g., coal mining, farming, construction)

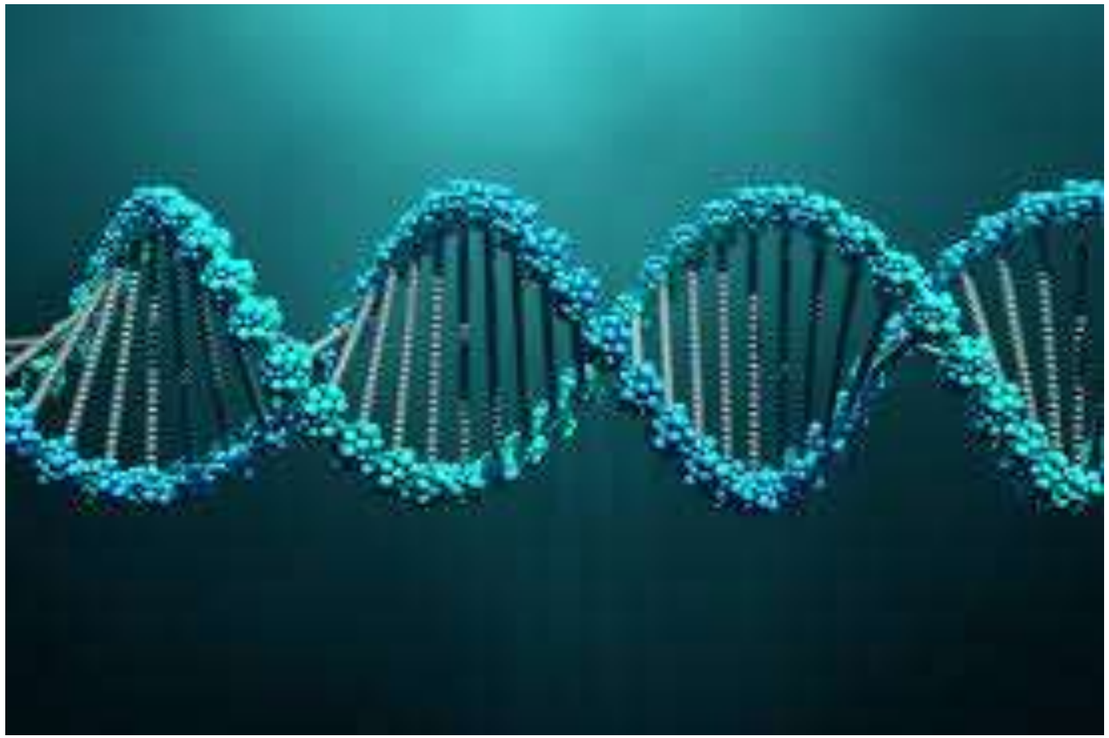
- Exposure to chemicals used in certain industries (e.g., textiles, metalworking)

CAUSES AND RISK FACTORS

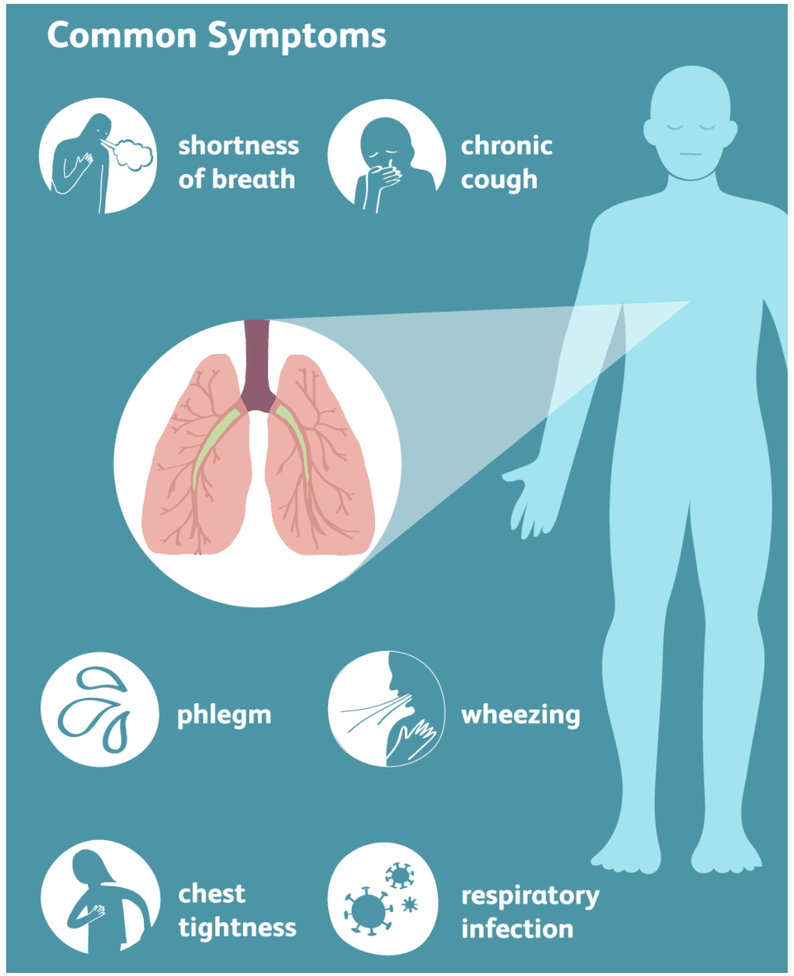
D. Genetics and ageing

- Genetic factors that increase susceptibility to COPD (e.g., alpha-1 antitrypsin deficiency)

- Ageing and the natural decline in lung function over time (especially in people who have also been exposed to lung irritants)



SYMPTOMS OF COPD



SYMPTOMS OF COPD

1. Breathlessness (dyspnea): This is the most common symptom of COPD. It can range from mild shortness of breath during physical activity to severe shortness of breath even when resting.

2. Chronic cough: A persistent cough that produces mucus (sputum) is a common symptom of COPD. The cough may be dry or productive, depending on the underlying cause.

3. Chest tightness or wheezing: Some people with COPD experience chest tightness or wheezing, which can make breathing difficult and cause discomfort.

4. Frequent respiratory infections: People with COPD are more susceptible to respiratory infections due to weakened lungs. These infections can worsen COPD symptoms and lead to more frequent exacerbations.

5. Exacerbations: Exacerbations are sudden worsenings of COPD symptoms that can last for several days or weeks. They can be triggered by respiratory infections, air pollution, or other factors. Exacerbations can lead to hospitalization and worsen lung function over time.

RESPIRATORY COMPLICATIONS

- **Exacerbations**: Sudden worsening of symptoms, often triggered by respiratory infections or environmental factors, that require medical treatment and may lead to hospitalization
- **Cor pulmonale:** Enlargement and weakening of the right side of the heart due to chronic high blood pressure in the lungs, which can cause symptoms such as swelling in the legs, ankle, and feet, and shortness of breath during sleep
- **Pulmonary hypertension:** High blood pressure in the lungs due to narrowing or blockage of the small blood vessels, which can cause symptoms such as shortness of breath during physical activity, chest pain, and fatigue
- **Respiratory failure:** Inability of the lungs to provide enough oxygen to the body or remove enough carbon dioxide, which can cause symptoms such as confusion, lethargy, and coma

NON RESPIRATORY COMPLICATIONS

- **Malnutrition:** Difficulty eating due to shortness of breath or other symptoms, which can lead to weight loss and malnutrition
- **Depression and anxiety:** Psychological distress caused by the physical and social consequences of COPD, which can exacerbate symptoms and impair quality of life
- **Osteoporosis:** Thinning and weakening of the bones due to prolonged use of corticosteroids or other factors associated with COPD, which can increase the risk of fractures
- **Sleep disorders:** Difficulty breathing during sleep due to narrowing or blockage of the airways, which can cause symptoms such as snoring, gasping for air, and daytime sleepiness
- **Cancer:** Increased risk of lung cancer due to exposure to lung irritants such as tobacco smoke and air pollution, which can worsen COPD symptoms and complications

DAIGNOSIS OF COPD

1. Medical history and physical examination: The first step in diagnosing COPD is to discuss your symptoms, medical history, and lifestyle habits with your healthcare provider. They will also perform a physical examination to check for signs of COPD, such as wheezing or chest tightness.

2. Spirometry test: This is the most common test used to diagnose COPD. It measures how much air you can breathe in and out of your lungs and how quickly you can do it. This test helps to determine if you have obstructive lung disease, which is a hallmark of COPD.

DAIGNOSIS OF COPD

3. Chest X-ray and CT scan: These imaging tests can help to rule out other lung diseases, such as lung cancer or tuberculosis, that may have similar symptoms as COPD. They can also provide information about the severity of COPD and the extent of lung damage.

4. Blood tests: Your healthcare provider may order blood tests to check for anemia, which is a common complication of COPD, or to look for other conditions that may be contributing to your symptoms or complicating your COPD, such as diabetes or heart disease.

DAIGNOSIS OF COPD

5. Pulmonary function tests (PFTs): These tests measure how well your lungs work by measuring lung volume, capacity, and flow rates. They can provide more detailed information about the severity and type of COPD you have, as well as help to monitor the progression of the disease over time.

6. Arterial blood gas (ABG) test: This test measures the levels of oxygen and carbon dioxide in your bloodstream to determine if you have low oxygen levels (hypoxemia) or high carbon dioxide levels (hypercapnia), which are common complications of severe COPD.

DAIGNOSIS OF COPD

7. Exercise testing: Your healthcare provider may ask you to perform a series of exercises to evaluate how well your lungs function during physical activity, which can help to determine if you have exercise-induced bronchoconstriction (EIB), a common complication of COPD that causes shortness of breath during exercise.

TREATMENT OF COPD

A. Quitting smoking (most important step)

- Smoking is the leading cause of COPD, and quitting is the most effective way to slow the progression of the disease and improve symptoms.

- Smokers with COPD should work with their healthcare provider to develop a quit plan that includes strategies such as nicotine replacement therapy, medication, and counseling.

TREATMENT OF COPD

B. Medications to help manage symptoms

- Bronchodilators: These medications help open up the airways, making it easier to breathe. They come in several forms, including inhalers, nebulizers, and pills.

- Corticosteroids: These medications help reduce inflammation in the lungs, which can make breathing easier and improve quality of life for some people with COPD.

- Phosphodiesterase-4 (PDE4) inhibitors: These medications are a newer type of bronchodilator that can be used in combination with other medications to help manage symptoms.

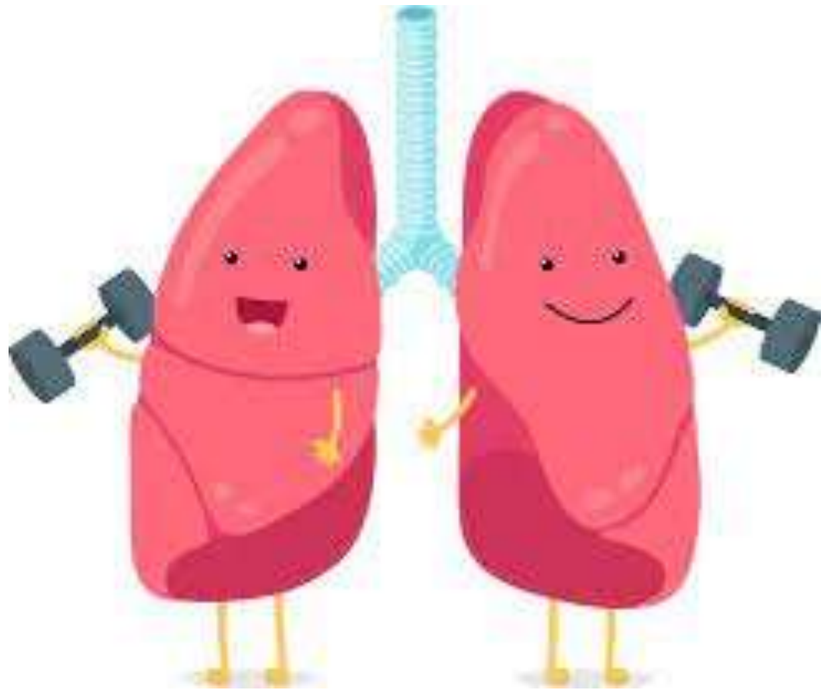
- Mucolytics: These medications help thin out mucus in the lungs, making it easier to cough up and clear out.

TREATMENT OF COPD

C. Pulmonary rehabilitation programs

- Pulmonary rehabilitation programs can help people with COPD improve their strength, endurance, and overall quality of life through exercise training, breathing techniques, and education about COPD management.

- These programs are typically led by a healthcare professional and may include group sessions or one-on-one coaching.



TREATMENT OF COPD

D. Oxygen therapy for severe cases with low oxygen levels in the bloodstream

- Oxygen therapy involves using a device called an oxygen concentrator or oxygen tank to deliver extra oxygen into the lungs through a mask or nasal prongs.

- This therapy can help improve breathing and prevent complications such as respiratory failure in people with severe COPD.

TREATMENT OF COPD

E. Flu and pneumococcal vaccines to prevent respiratory infections

- People with COPD are at increased risk for respiratory infections due to weakened lungs and immune systems.

- Getting vaccinated against the flu and pneumococcal diseases can help prevent these infections and reduce the risk of complications such as hospitalization or worsening COPD symptoms.

PREVENTION

- Avoiding smoking and secondhand smoke exposure
- Protecting lungs from air pollution, dusts, fumes, and chemicals in the workplace
- Getting vaccinated against flu and pneumococcal diseases
- Eating a healthy diet with plenty of fruits, vegetables, and whole grains
- Exercising regularly to maintain strength and endurance
- Maintaining a healthy weight through diet and exercise
- Managing other chronic health conditions, such as asthma or heart disease, that may contribute to COPD symptoms or complications

THANK YOU