CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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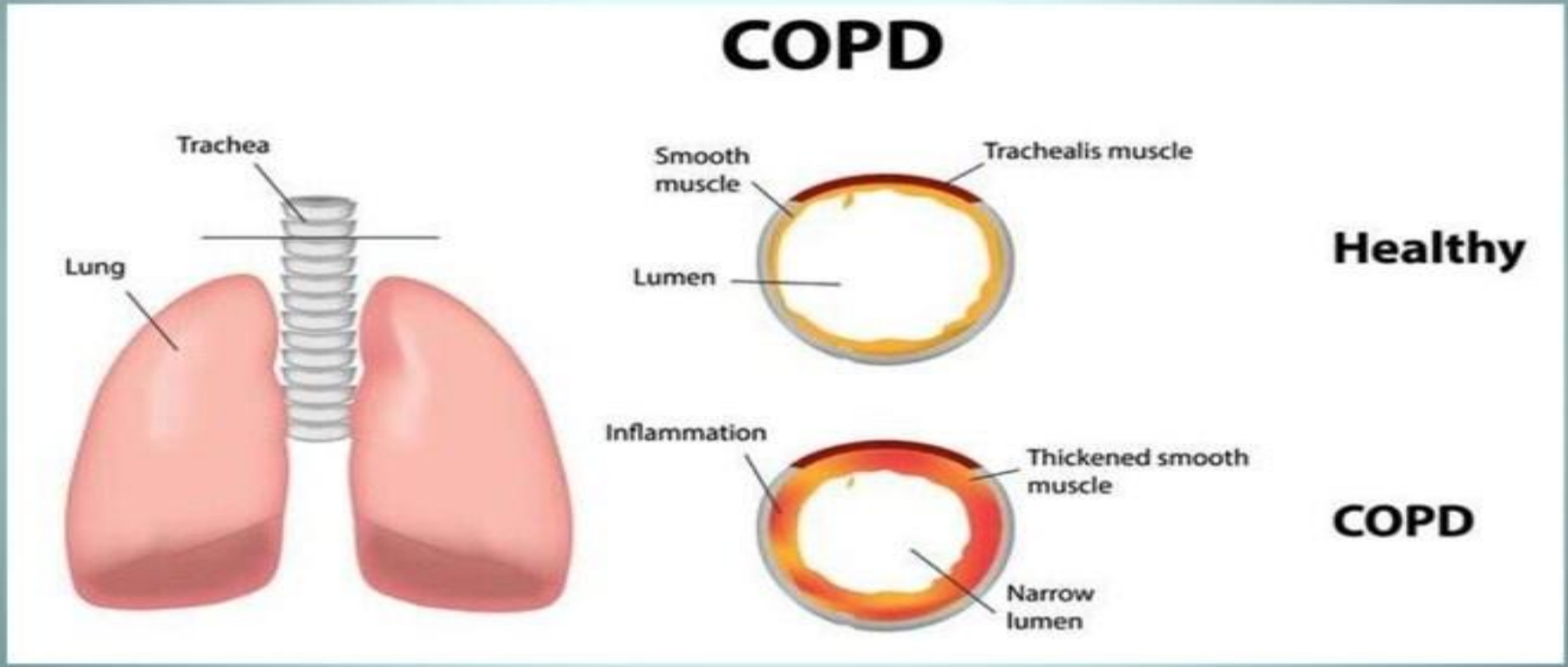
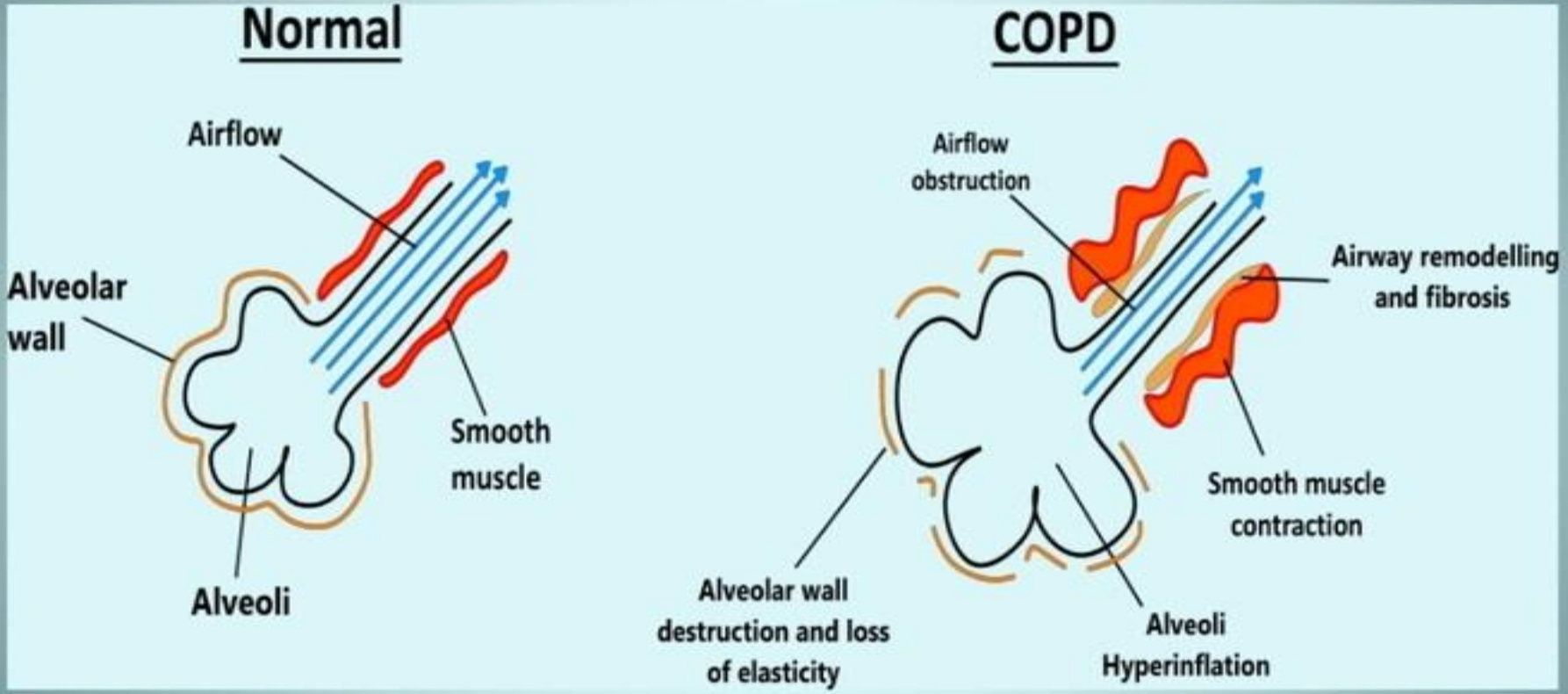
Chronic Obstructive Pulmonary Disease or Chronic Obstructive lung disease.



- **Chronic obstructive pulmonary disease (COPD)is a disease state characterized by airflow limitation that is not fully reversible.**
- **COPD may include diseases that cause airflow obstruction (e.g., emphysema, chronic bronchitis) or a combination of these disorders.**

- COPD includes chronic bronchitis and emphysema. Asthma is not considered part of COP due its reversibility.

1. **Chronic bronchitis**: is a chronic inflammation of the lower respiratory tract characterized by excessive mucous secretion, cough, & dyspnea associated with recurrent infections of the lower respiratory tract.
2. **Emphysema:** is a complex lung disease characterized by damage to the gas- exchanging surfaces of the lungs (alveoli)

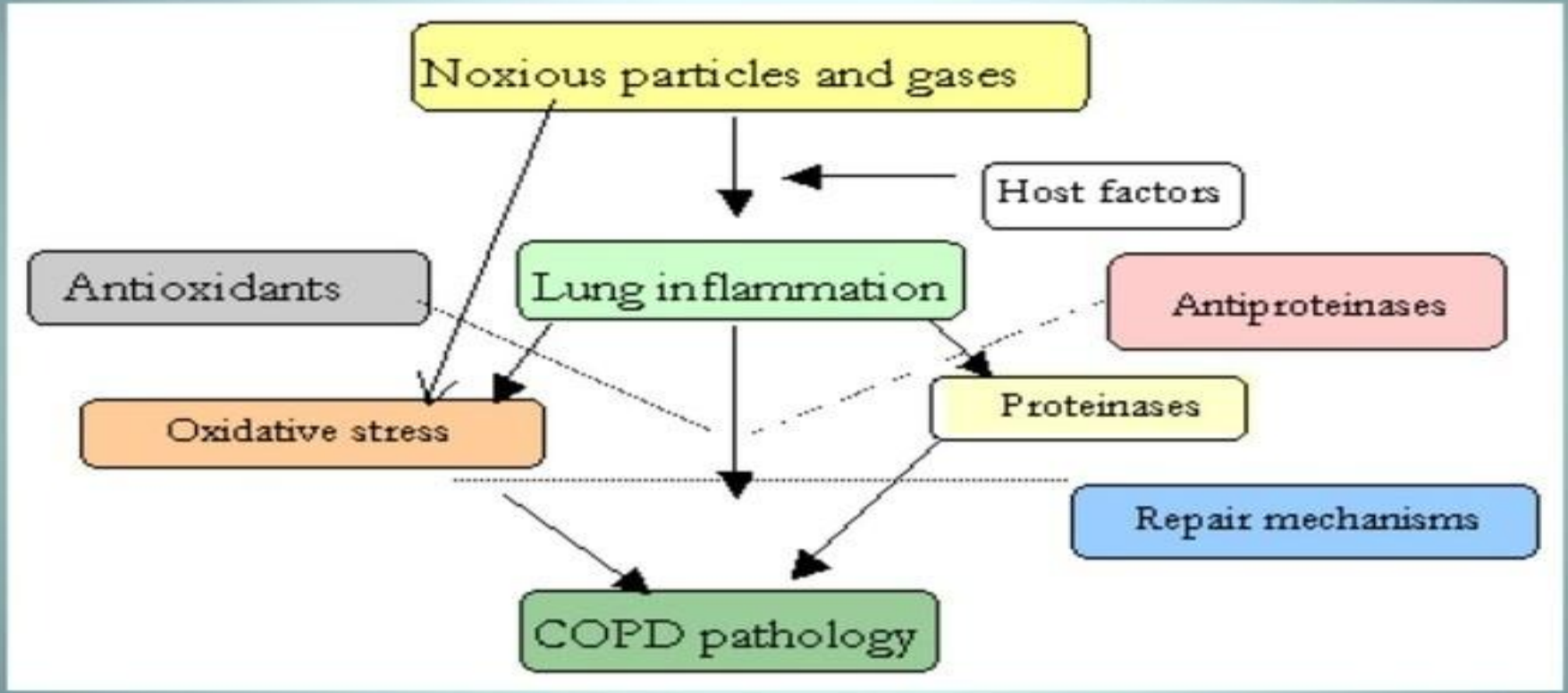

Normal
Airflow
Alveolar wall
Smooth muscle
Alveoli
COPD
Airflow obstruction
Airway remodelling and fibrosis
Smooth muscle contraction
Alveolar wall destruction and loss of elasticity
Alveoli Hyperinflation

Risk Factors for COPD

1. Exposure to tobacco smoke accounts for an estimated 80% to 90% of COPD cases. (smoking)
2. Passive smoking
3. Occupational exposure
4. Ambient air pollution
5. Genetic abnormalities, including a deficiency of **alpha1-antitrypsin** enzyme.

SMOKING

PATHOPHYSIOLOGY



Clinical Manifestations

- COPD is characterized by three primary symptoms:

1. **Cough**
2. **Sputum production and**
3. **Dyspnea on exertion (DOE)**

Dyspnea may be severe and often interferes with the patient's activities. Weight loss is common because dyspnea interferes with eating.

Assessment and Diagnostic Findings

1. **History collection** (The nurse should obtain a thorough health history for a patient with known or potential COPD).

Key Factors to Assess in the COPD Patient's Health History

1. Exposure to risk factors—types, intensity, duration.
2. Past medical history—respirator diseases/problems, including asthma, allergy, sinusitis, nasal polyps, history of respiratory Infections.
3. Family history of COPD or other chronic respiratory diseases.
4. Pattern of symptom development.
5. History of exacerbations or previous hospitalizations for respiratory problems.

6. Presence of comorbidities
7. Appropriateness of current medical treatments
8. Impact of the disease on quality of life
9. Available social and family support for patient
10. Potential for reducing risk factors (e.g., smoking cessation).

2. **Pulmonary function studies** are used to help confirm the diagnosis of COPD, determine disease severity, and follow disease progression.
3. **Spirometry** is used to evaluate airflow obstruction.
4. **Arterial blood gas (ABGs)** measurements may also be obtained to assess baseline oxygenation and gas exchange.

5. **Chest x-ray**
6. **alpha1antitrypsin deficiency screening** may be performed for patients under age 45 or for those with a strong family history of COPD.

Complications

1. **Respiratory insufficiency and Respiratory failure** are major life-threatening complications of COPD.
2. Pneumonia & respiratory infection
3. Right-sided heart failure
4. Pulmonary hypertension
5. Pneumothorax
6. Skeletal muscle dysfunction
7. Depression and anxiety disorders

The objective of Management client with COPD

The main objective of COPD management are Following:

1. Relieve symptoms
2. Prevent disease progression
3. Reduce mortality & improve exercise tolerance
4. Prevent and treat complications

Medical Management

1. **Risk reduction**: **Smoking cessation** is the single most effective intervention to prevent COPD or slow its progression. (**smoking cessation** is major essential to reduce disease progression and improve survival rate)

Nurses play a key role in promoting smoking cessation and educating patients about ways to do so. Patients diagnosed with COPD who continue to smoke must be encouraged and assisted to quit.

PHARMACOLOGIC THERAPY

- **Bronchodilators**: Bronchodilators relieve bronchospasm and reduce airway obstruction by allowing increased oxygen distribution throughout the lungs and improving alveolar ventilation.
- These medications, which are **central in the management of COPD** are delivered through a **metered-dose inhaler (MDI) by nebulization**, or via the oral route in pill or liquid form.

A metered-dose inhaler(MDI) is a pressurized device containing an aerosolized powder of medication.

Metered-dose inhaler(MDI)

Corticosteroids

- **Corticosteroids**. Inhaled and systemic corticosteroids (oral or intravenous) may also be used in COPD but are used more frequently in asthma.
- Although it has been shown that corticosteroids do not slow the decline in lung function, these medications may improve symptoms.

- **Other Medications** including Patients should receive a yearly influenza vaccine and the **pneumococcal vaccine** every 5 to 7 years as preventive measures.

MANAGEMENT OF EXACERBATION

- An exacerbation of COPD is difficult to diagnose, but signs and symptoms may include increased dyspnea, increased sputum production and purulence, respiratory failure, changes in mental status, or worsening blood gas abnormalities.
- Primary causes for an acute exacerbation include tracheobronchial infection and air pollution.

OXYGEN THERAPY

OXYGEN THERAPY

- Oxygen therapy can be administered as long-term continuous therapy, during exercise, or to prevent acute dyspnea.
- Long-term oxygen therapy has been shown to improve the patient's quality of life and survival.

SURGICAL MANAGEMENT

- **bullectomy**

  bullae are enlarged airspaces that do not contribute to ventillation but occupy space in the thorax,these areas may be surgically excised

- **lung volume reduction surgery**
- it involves the removal of a portion of the diseased lung parenchyma.this allows the functional tissue to expand.
- **lung transplantation**

PULMONARY REHABILITATION

- The primary goal of rehabilitation is to restore patients to the highest level of independent function possible and to improve their quality of life.
- A successful rehabilitation program is individualized for each patient, is multidisciplinary, and attends to both the physiologic and emotional needs of the patient.

Components of pulmonary Rehabilitation