

Chronic Obstructive Pulmonary Disease

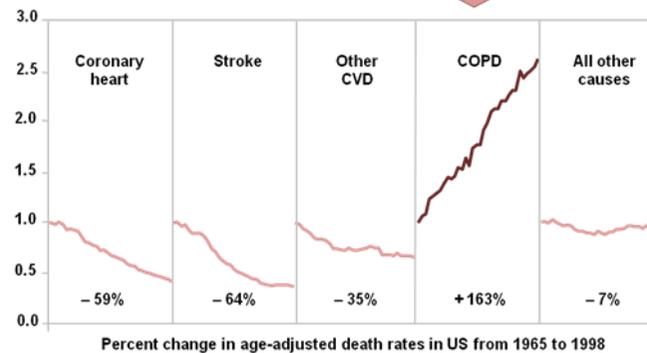
(COPD)

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Introduction

- n COPD is a preventable and treatable disease with some significant extrapulmonary effects that may contribute to the severity in individual patients.
- n Its pulmonary component is characterized by airflow limitation that is not fully reversible.
- n The airflow limitation is usually progressive and associated with an abnormal inflammatory response of the lung to noxious particles or gases.

COPD is the only major cause of death that has increased significantly in recent years



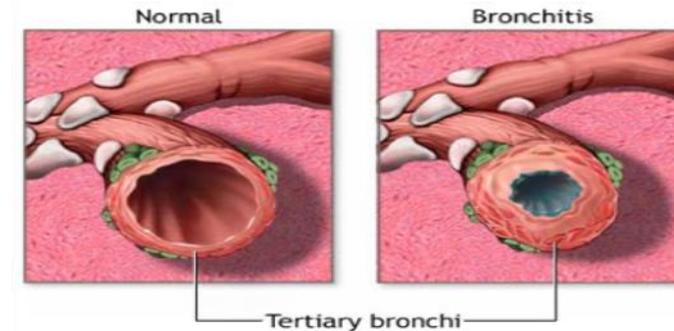
Pathophysiology of COPD

- Increased mucus production and reduced mucociliary clearance → cough and sputum production.
- Loss of elastic recoil - airway collapse.
- Increase smooth muscle tone.
- Pulmonary hyperinflation.
- Gas exchange abnormalities → hypoxemia and/or hypercapnia .

Two Major Causes of COPD Chronic Bronchitis

Chronic Bronchitis is characterized by

- Chronic inflammation and excess mucus production.
- Presence of chronic productive cough.



Normal versus Diseased Bronchi

Emphysema

Emphysema is characterized by

- Damage to the small, sac-like units of the lung that deliver oxygen into the lung and remove the carbon dioxide.
- Chronic cough.



Symptoms of Chronic Bronchitis & Emphysema

Chronic Bronchitis

- Chronic cough.
- Shortness of breath.
- Increased mucus.
- Frequent clearing of throat.

Emphysema

- Chronic cough.
- Shortness of breath.
- Limited activity level.

Risk Factors for COPD

— Smoking is the primary risk factor :

- Long-term smoking is responsible for 80-90 % of cases.

— Prolonged exposures to harmful particles and gases from:

- Second-hand smoke .
- Industrial smoke .
- Chemical gases, vapors, mists & fumes.
- Dusts from grains, minerals & other materials.

— Other Risk Factors for COPD :

- History of childhood respiratory infections.
- Genetic makeup.
- Increasing age.

prevent or slow the progression of COPD

- Smoking cessation is the single most effective - and cost effective - intervention in most people to reduce the risk of developing COPD and stop its progression.
- Reduction of total personal exposure to tobacco smoke, occupational dusts and chemicals, and indoor and outdoor air pollutants are important goals to prevent the onset and progression of COPD.

Differential Diagnosis: COPD and Asthma

COPD

- Onset in mid-life.
- Symptoms slowly progressive .
- Long smoking history.
- Dyspnea during exercise.
- Largely irreversible airflow limitation .

ASTHMA

- Onset early in life (often childhood).
- Symptoms vary from day to day.
- Symptoms at night/early morning.
- Family history of asthma.
- Largely reversible airflow limitation .
- Allergy, rhinitis, and/or eczema also present.

GOALS of COPD MANAGEMENT

- Relieve symptoms .
- Prevent disease progression.
- Improve exercise tolerance.
- Improve health status.
- Prevent and treat complications.
- Prevent and treat exacerbations.
- Reduce mortality .

Pharmacotherapy for Stable COPD

Bronchodilators

- Short-acting

β_2 - agonist .

- Long-acting

β_2 - agonist .

- Anticholinergics .
- Methylxanthines.

Steroids

- Oral.
- Inhaled .

Oxygen Therapy

- NB:None of the existing medications for COPD have been shown to modify the long-term decline in lung function that is the hallmark of this disease. Therefore, pharmacotherapy for COPD is used to decrease symptoms and/or complications.