

CHRONIC PULMONARY DISEASE

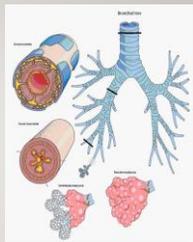
R.THOMAS

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

- Preventable & treatable disease
- Airflow limitations that is progressive and not fully reversible
- Associated with abnormal inflammatory response of lung to noxious particles or gases
 - Chronic Bronchitis
 - Emphysema

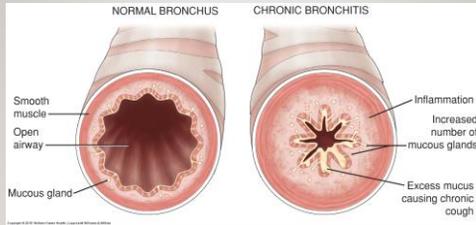
• Pathophysiology

- Proximal & peripheral airways, lung parenchyma, pulmonary vasculature
- Chronic inflammation → narrowing
 - enlarged submucosal gland
 - hypersecretion of mucus
 - inflammation → fibrosis → scar tissue & narrowing of lumen



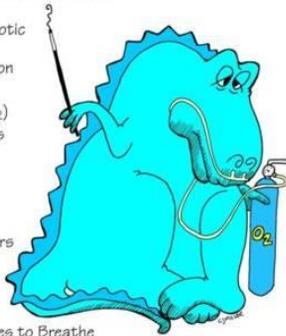
• Risk Factors

CHRONIC BRONCHITIS



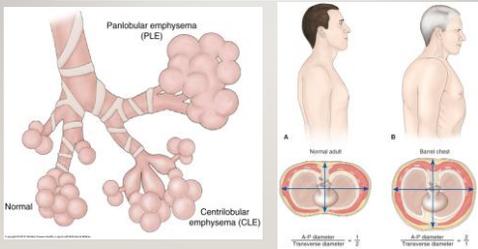
CHRONIC BRONCHITIS "BLUE BLOATER"

- * Color Dusky to Cyanotic
 - * Recurrent Cough & ↑ Sputum Production
 - * Hypoxia
 - * Hypercapnia (↑ pCO₂)
 - * Respiratory Acidosis
 - * ↑ Hgb
 - * ↑ Resp Rate
 - * Exertional Dyspnea
 - * ↑ Incidence in Heavy Cigarette Smokers
 - * Digital Clubbing
-
- * Cardiac Enlargement
 - * Use of Accessory Muscles to Breathe
 - * Leads to Right-Sided Failure



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EMPHYSEMA







CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

• Assessments	• Classification
• Spirometry	• Grade I
• ABG	• Grade II
• CXR	• Grade III
• Alpha I-antitrypsin deficiency	• Grade IV

Clinical Manifestations of COPD

- ❖ Three primary symptoms
 - Chronic cough
 - Sputum production
 - Dyspnea
- ❖ Weight loss due to dyspnea
- ❖ "Barrel chest"

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COPD- GOALS

- Airway clearance
- Improve breathing patterns
- Improving activity tolerance
- Preventing complications
- Managing complications

EXACERBATION MANAGEMENT

- Pharmacological
 - Bronchodilators
 - Corticosteroids
 - Alpha 1-antitrypsin
 - Antibiotics
 - Antitussive
 - Vasodilators
 - Vaccines
- Oxygen
- Surgery
 - Bullectomy
 - Lung volume reduction
 - Lung Transplantation
- Pulmonary Rehab
 - Breathing exercises
 - Activity & Self-care
 - Physical conditioning
 - Oxygen therapy

Medications to Treat COPD

- ❖ Bronchodilators, MDIs
 - Beta-adrenergic agonists
 - Muscarinic antagonists (anticholinergics)
 - Combination agents
- ❖ Corticosteroids
- ❖ Antibiotics
- ❖ Mucolytics
- ❖ Antitussives

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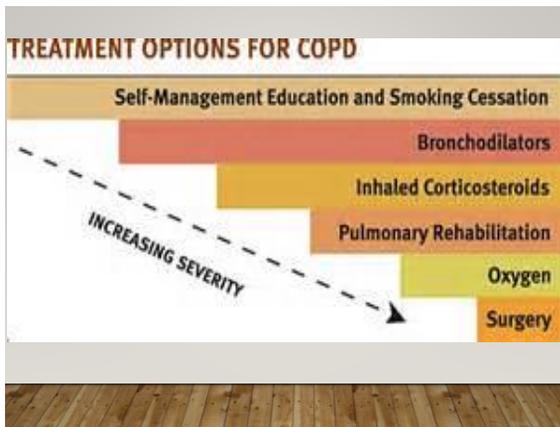
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Medical Management

- ❖ Promote smoking cessation
- ❖ Reducing risk factors
- ❖ Managing exacerbations
- ❖ Providing supplemental oxygen therapy
- ❖ Pneumococcal vaccine
- ❖ Influenza vaccine
- ❖ Pulmonary rehabilitation
- ❖ Managing exacerbations

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BRONCHODILATORS

- Beta 2 Adrenergic Agonist
 - Albuterol, Ventolin, Alupent, Brethine, Foradil, Serevent diskus
- Anticholinergic
 - Atrovent
- Combo- SABA & Anticholinergic
 - Combivent, duorent
- Inhaled Corticosteroids (ICS)
 - Pulmicort, Flovent
- Combo ICS and LABA
 - Symbicort, Advair

Complications of COPD

- ❖ Respiratory insufficiency and failure
- ❖ Pneumonia
- ❖ Chronic atelectasis
- ❖ Pneumothorax
- ❖ Cor pulmonale

BRONCHIECTASIS

- Chronic, irreversible dilation of bronchi
- Etiology
- Pathophysiology
- S/S
 - Chronic cough, purulent sputum, hemoptysis, clubbing, recurrent pulmonary infections
- Dx
- Treatment

Bronchiectasis: Clinical Manifestations and Medical Management

- ❖ Chronic cough
- ❖ Purulent sputum in copious amounts
- ❖ Clubbing of the fingers
- ❖ Postural drainage
- ❖ Chest physiotherapy
- ❖ Smoking cessation
- ❖ Antimicrobial therapy
- ❖ Bronchodilators and mucolytics

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Bronchiectasis: Nursing Management

- ❖ Focus is on alleviating symptoms and clearing pulmonary secretions
- ❖ Patient teaching
 - Smoking cessation
 - Postural drainage
 - Early signs and symptoms of respiratory infections
 - Conserving energy

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ASTHMA

- Pathophysiology
 - Airway hyperresponsiveness, hypersecretion of mucus, reversible airflow limitation
- Predisposing factors
 - Atopy, female gender
- Etiology
 - Allergen, sensitizers
- Contributing factors
 - Respiratory infections, air pollution, smoking, diet, small size at birth

ASTHMA

- S/S
 - Cough, dyspnea, wheezing
- Dx
 - Pulse ox, ABG, CXR
 - ↑ eosinophils & IgE
- Monitoring
 - Peak Flow
- Prevention
- Complications

Clinical Manifestations

- ❖ Cough, dyspnea, wheezing
- ❖ Exacerbations
 - Cough, productive or not
 - Generalized wheezing
 - Chest tightness and dyspnea
 - Diaphoresis
 - Tachycardia
 - Hypoxemia and central cyanosis



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Medications Management for Asthma

- ❖ Stepwise, refer to Figure 24-7
- ❖ Quick-relief medications
 - Beta₂-adrenergic agonists
 - Anticholinergics
- ❖ Long-acting medications
 - Corticosteroids
 - Long-acting beta₂-adrenergic agonists
 - Leukotriene modifiers



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QUICK RELIEF MEDICATIONS

- Inhaled Short Acting
 - Albuterol, Xopenex, Maxair, Alupent
- Anticholinergic
 - Atrovent
- Corticosteroids
 - Methylprednisolone, prednisolone, prednisone

Long	Acting Medications
Inhaled Corticosteroids	Pulmicort, flovent, aero-bid
Systemic Corticosteroids	Medrol, prelone, deltasone
Long Acting Beta 2	Serevent diskus, Albuterol oral
Methylxanthines	theophylline
Combined meds	Advair, Symbicort
Leukotriene Modifiers	Singulair
Cromolyn & nedocromil	Cromolyn & nedocromil
5- Lipoxigenase inhibitor	Zyflo
Immunomodulators	Xolair

PEAK FLOW MONITORING

- Green zone
- Yellow zone
- Red zone

STATUS ASTHMATICUS

- Severe and persistent asthma
- Does not respond to therapy
- Pathophysiology
 - Severe bronchospasm, asphyxia
- S/S
- Dx
- Treatment

Cystic Fibrosis

- ❖ Most common autosomal recessive disease among the Caucasian population
- ❖ Genetic screening to detect carriers
- ❖ Genetic counseling for couples at risk
- ❖ Genetic mutation changes chloride transport which leads to thick, viscous secretions in the lungs, pancreas, liver, intestines, and reproductive tract
- ❖ Respiratory infections are the leading cause of morbidity and mortality



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Medical Management of CF

- ❖ Chronic: control of infections; antibiotics
- ❖ Acute: aggressive therapy involves airway clearance and antibiotics based on results of sputum cultures
- ❖ Anti-inflammatory agents
- ❖ Corticosteroids; inhaled, oral, IV during exacerbations
- ❖ Inhaled bronchodilators
- ❖ Oral pancreatic enzyme supplementation with meals
- ❖ Cystic fibrosis transmembrane conductance regulator (CFTR) modulators are a new class of drugs and help to improve function of the defective CFTR protein



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Nursing Management of CF

- ❖ Strategies that promote removal of pulmonary secretions
 - CPT and breathing exercises
- ❖ Remind patient to reduce risk factors for resp infection
- ❖ Adequate fluid and electrolyte intake
- ❖ Palliative care
- ❖ Discuss end-of-life issues and concerns
