

CHRONIC OBSTRUCTIVE PULMONARY DISEASE



with Ellen Hillegass, PT

WHAT IS IT?

- Chronic Obstructive Pulmonary Disease (COPD) is a term used for a cluster of diseases including emphysema, chronic bronchitis and bronchospasm/ reactive airway disease/ asthma. All diseases have a problem getting air OUT of the lungs.
- Etiology: smoking, emphysema from genetics
- Pathology of Emphysema
 - Destruction of the alveoli cell wall due to problems with surfactant
 - Hyperinflated air sacs and hyperinflation of chest wall (barrel chest).
 - Present with SOB
- Pathology of Chronic Bronchitis
 - Hyperplasia of mucus secreting glands resulting in increased secretions.
 - Destruction of infection fighting mechanisms (macrophages, cilia).
- Pathology of Reactive Airway Disease/bronchospasm/ asthma
 - Airways constrict and limit air from leaving/entering lungs
- Most patients have mixture of three pathologies.
- Impairments
 - Poor gas exchange, low amounts of oxygen diffused INTO circulatory system, low amounts of CO₂ diffused OUT of circulatory system
 - Increased secretions > chronic cough > increased risk pulmonary infection

SPECIAL TESTS



- Smoking history
- Physical features of chronic cough, hyperinflation of chest, hypertrophied respiratory accessory muscles
- Pulmonary function tests
 - Show decreased FEV₁ and FEV₁/FVC
- Chest X-Ray
- ABGs
 - Chronic bronchitis - low O₂ and increased pCO₂
 - Emphysema - will not see increased pCO₂
- Low SpO₂ or decreased SpO₂ with activity

DIFFERENTIAL DIAGNOSIS

- Juvenile onset asthma
- Restrictive lung disease
 - Different history
 - Pulmonary function tests would not be the same



TREATMENT EXAMPLES



- Mobilization of secretions, airway clearance techniques
- Progressive activity
- Monitor vital signs - titration of O₂ with activity
- Strengthening exercise program
 - Check quad strength - key prognostic indicator
 - Lower quad strength is a higher risk for morbidity and mortality
 - Perform sit to stands

EXAMPLE QUESTION

What is the best option when your patient who has COPD and uses 2L O₂ at rest demonstrates a drop in SpO₂ with activity?

1. Stop all activity
2. Bump up SpO₂ (as long as there is an order)
3. Call MD
4. Check blood pressure



Answer: Bump up SpO₂

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