

OBJECTIVES FOR COMMON CLINICAL PROBLEMS

Obstructive Lung Disease – Asthma and COPD

A. KNOWLEDGE: Students should be able to define, describe, and discuss:

1. The mechanisms of airflow obstruction and the physiological consequences.
2. The definition, differential diagnosis, causes and pathophysiology of obstructive lung disease.
3. Distinguish the epidemiology, risk factors, symptoms, signs, radiographic findings, pulmonary function and blood gas abnormalities as well as the typical clinical course of the main types of obstructive lung disease (asthma, chronic bronchitis and emphysema)
4. Allergic and non-allergic factors that may precipitate bronchospasm and exacerbate asthma, including:
 - Allergens (pollen, animal dander, cockroaches, dust mites, mold)
 - Allergic rhinitis/post-nasal drip; acute/chronic infectious sinusitis
 - Respiratory infections
 - Pulmonary edema/gastroesophageal reflux
 - Exercise/cold air
 - Anxiety/stress
 - Poor air quality (e.g. ozone, pollutants, tobacco smoke)
 - Drugs
 - Occupational exposures
 - Medical noncompliance
5. Common causes of acute exacerbations of COPD (AECOPD), including:
 - Respiratory infections
 - Pulmonary edema
 - Poor air quality (e.g. ozone, pollutants, tobacco smoke)
 - Occupational exposures
 - Medical noncompliance

6. The genetics and role of alpha-1 antitrypsin deficiency in some patients with emphysema
7. The affect of chronic obstructive bronchitis and emphysema on the pulmonary circulation and pulmonary vascular resistance including the effects of hypoxia and the mechanism of development of cor pulmonale.
8. Non pharmacologic therapies for asthma and COPD.
9. Therapies for asthma and COPD, including pharmacology/ side effects:
 - Beta-agonist bronchodilators (short and long acting)
 - Anticholinergic bronchodilators
 - Leukotriene inhibitors
 - Inhaled and systemic corticosteroids
 - Antimicrobial agents
 - Supplemental oxygen
 - Theophylline
10. The indications for and the efficacy of influenza and pneumococcal vaccines

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. History-taking skills: Students should be able to obtain, document, and present an age-appropriate medical history, that differentiates among etiologies of disease including:
 - Existence, duration, exacerbating and relieving factors and severity of dyspnea, orthopnea, paroxysmal nocturnal dyspnea, cough, sputum production, hemoptysis, wheezing, chest pain, fever, chills, sweats.
 - Medication use and adverse reactions
 - Past history of respiratory problems and allergies
 - Family history of respiratory problems
 - Smoking history and passive exposure to tobacco smoke
 - Occupational and environmental history
2. Physical exam skills: Students should be able to perform a physical exam of the respiratory system to establish the diagnosis and severity of disease including vital signs (including pulse oximetry), inspection, palpation, percussion and auscultation. They should also be able to identify abnormalities including signs of respiratory distress, hyperinflated lungs and chest, abnormal breath sounds, crackles and wheezes, signs of pulmonary consolidation, pleural effusion, and pneumothorax.
3. Differential diagnosis: Students should be able to generate a differential diagnosis recognizing specific history and physical exam findings that suggest a diagnosis of chronic bronchitis, emphysema, asthma, or other conditions with similar findings

4. Laboratory interpretation: Order and interpret diagnostic and laboratory tests based on the differential diagnosis. These may include:
 - Pulmonary function tests
 - Arterial blood gases including the determination of the A-a difference
 - Chest radiograph

5. Management skills: Students should be able to develop an appropriate evaluation and treatment plan for patients that includes:
 - The use of bronchodilators and inhaled corticosteroids
 - The key components of the care of patients admitted with acute exacerbations of asthma and COPD
 - Using systemic corticosteroids appropriately
 - Judicious use of antimicrobial agents
 - The principles of oxygen therapy
 - Smoking cessation strategies
 - Be familiar with the Canadian recommendations for the management of asthma and COPD