Respiratory Disorders (Part B)
Module 3 - Chapter 7

Overview
• Infections
• Chronic Obstructive Pulmonary Disease
• Restrictive Lung Disease
• Pleural effusions
• Cystic Fibrosis
• Respiratory Distress Syndrome
• Trauma
• Lung Cancers

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Respiratory Disorders
• S/S (see supplement)
• Rhinorrhea (nasal discharge), epistaxis (nose bleed)
• Hemoptysis (coughing up blood), increased congestion (sputum or phlegm production)
• Shortness of breath (SOB), dyspnea,
• Abnormal breath sounds
  – See below
• Finger clubbing (enlargement of the ends of fingers & toes).
Respiratory Disorders

- **Acute**
  - Rapid onset; short course
  - Ex: Acute Bronchitis
- **Chronic**
  - Slow onset; long course
  - Ex: Chronic Bronchitis

Respiratory Infections

- **Upper**
- **Lower**
Upper Respiratory Infections

URI

- Most Common
  - Common Cold (Coryza)
  - Sinusitis
  - Throat Infections
    - Pharyngitis
    - Tonsillitis
    - Laryngitis
    - Acute Epiglottitis
  - Croup
  - Influenza

URI

- Cold
  - Nose & Sinus Congestion
- Sinusitis
  - Inflammation or infection of sinuses.
Throat Infections

- Tonsillitis/Pharyngitis
  - “Throat Pain” & “Sore throat”
  - Inflammation or infection of throat/tonsils

Acute Epiglottitis

- Life threatening bacterial infection of epiglottis
  - Causes Stridor
    - High pitched-harsh breath sound
    - Due to partial respiratory obstruction
Throat Infections

- **Laryngitis**
  - Inflammation of larynx
  - Causes dysphonia
  - “Hoarseness”

Lower Respiratory Infections
LRI

- **Most Common Disorders**
  - Acute Bronchitis
  - Pneumonia
- **Usually caused by infectious pathogens**
  - Virus & bacteria
- **Can also be caused by exposure to chemicals, particles, extreme heat etc.**
Acute Bronchitis

- Acute inflammation of bronchial tubes
  - Inflammation leads to constriction of bronchial tubes
- S/S
  - Wheezing

Pneumonia

- Inflammation of lung’s lobules
  - Areas of Adjoining Alveoli
  - Commonly due to infection
  - Other Causes
    - Chemicals
    - Dust/Particles
    - Extreme Heat
Pneumonia

- Inflammatory disease of lungs
  - Infections
  - Chemicals
  - Inhaled particles
  - Extreme Heat

Influenza

- Acute Viral Illness
  - Rapid Onset
  - Pronounced Symptoms
    - Fever
    - Chills
    - Myalgias
    - Dry, hacky Cough
  - Types
    - Type A
      - Severe
Croup

- Laryngotracheobronchitis
- Is a viral infection in young children
  - Causes swelling of airways
  - Characterized by “barking” cough

TB - Tuberculosis

- Chronic Lung Infection
- Highly communicable (Spreads from person to person)
- Bacterial
  - Mycobacterium tuberculosis
- Can produce granuloma
  - Type of nodular/inflammatory granular lesions
**Pleurisy/Pleuritis**

- Inflammation of Pleurae
- S/S
  - Dry, hacky cough
  - Severe, sharp chest pain
    - Worse on inhalation

**Pertussis**

- Acute infectious bacterial disease characterized by a cough
  - Has a “whoop” sound.
  - Also called whooping cough
Obstructive vs Restrictive Lung Disease

• **Obstructive Lung Disease**
  – Exhalation is abnormal
  • Air passages are partially blocked (obstructed)

• **Restrictive Lung disease**
  – Inhalation is abnormal
  • Lung or chest wall is ‘stiff’ (restricted)

Chronic Obstructive Pulmonary Disease (COPD)

• Respiratory disorders characterized by;
  – *Chronic partial obstruction* of lower air passages

• S/S
  – Chronic cough
  – Dyspnea
    • Difficulty breathing
  – Orthopnea
    • Breath better when chest upright.
  – Wheezing
    • Whistling sound heard when breathing
  – Rales
    • Crackling sound from moisture in the alveolus.
  – Rhonchi
    • Coarse, rattling noise or snoring sound from abnormal mucus.
COPD

- 3 Major Obstructive Disorders
  - (First 2 obstructive due to diseased bronchial tubes)
  - 1. Asthma
    - Bronchospasm
  - 2. Chronic Bronchitis
    - Swelling, mucus
  - 3. Emphysema
    - Alveolar destruction

Asthma

- Precipitated by an allergy
- Bronchospasm
  - Smooth muscle constricts opening
- Treated with mucolytics & bronchodilators
- Status Asthmaticus
  - Severe, prolonged attack
    - Does not respond to treatment
Chronic Bronchitis

- Chronic inflammation of bronchi
  - Usually caused by smoking & pollution
  - Swelling of mucosa
  - Causes deep, productive (mucus) cough
    - Expectorants help break up mucus

Chronic Bronchitis

- Nickname “Blue Bloater”
- Cyanotic
  - Poor gas exchange (due to inflammation)
    - Low O2
    - High CO2
  - Swollen
    - Above leads to right sided heart failure with swelling
Emphysema

- Destruction of alveolar walls
- Leads to decrease elasticity of alveoli & entire lung.
  - Alveoli;
    - Expand ok
    - Can’t contract (no recoil)
      - Air is trapped

Emphysema

- Nickname “Pink Puffer”
  - Fair gas exchange
    - Near Normal O2
- “Puffing” when breathing
- Has Barrel-shaped chest
Pink Puffers and Blue Bloaters

Restrictive Lung Disease

• Problem with lung expansion
  – “Stiff lungs or chest wall”
    • Can’t inhale normally

• 2 Major Causes
  – Infiltrative Lung Disease
  – Chest Wall Abnormalities
Infiltrative Lung Disease

- Lung cannot fully expand
  - Infiltrated (filled) with abnormal substance.
- Has decreased compliance
  - Ease with which lung tissue is stretched
- Examples;
  - Pneumoconiosis
    - Coal Miner's lung "black lung"
    - Called Anthracosis

Chest Wall Abnormalities

- Chest/Lungs cannot expand normally
  - Caused by disease of;
    - Muscles
    - Joints
    - Bones
    - Nerves
  - Examples;
    - Arthritis of thoracic cage
    - Scoliosis
Pleural Effusion

- Abnormal fluid in pleural cavity
  - Between the visceral & parietal pleurae
    - “Fluid around the lungs”
  - Thoracentesis
    - Removal of fluid for study & to improve symptoms

Pulmonary Embolus

- Blockage in an artery of the lungs
  - Caused by a mass of undissolved matter.
  - Usually a blood clot.
    - Sometimes clots of fat, air etc.
Pulmonary Edema

- Accumulation of extravascular fluid in lung tissue
  - “Fluid in the lungs”
- Caused most commonly by heart failure.

Cystic Fibrosis

- Hereditary Disease of Exocrine Glands in many organs
  - Causes glands to produce abnormal, secretions & mucus
    - Extra thick (clogs up lungs)
  - Salty
    - Child affected is a “Salty Kid”
Acute Respiratory Distress Syndrome (ARDS)

- Lungs no longer function effectively for life
  - Cannot exchange gases
- Something damages lungs
  - (Like prolonged shock)
- Damaged cells in alveoli cannot produce surfactant.
  - Causes atelectasis
    - Collapse of lung tissue

Hyaline Membrane Disease

- Usually occurs in premature infants
  - Lungs are immature
    - Cells of alveoli are not producing surfactant
    - Alveoli collapse
Lung Trauma

- Pneumothorax
  - Air in pleural cavity
  - Compresses lung inside chest cavity
    - Completely or partially collapses

Lung Cancer

- Bronchogenic Carcinoma
  - Most common lung cancer
  - Involves epithelial lining of bronchus
  - Associated with tobacco use
  - Metastasizes rapidly