Respiratory Assessment
NURS 141
Introduction to Nursing
Carole Chassereau

Respiratory System

Respiratory System Review

- Ventilation
  - Mechanical act
  - Inspiration - active
  - Expiration - passive
  - Response to volume & pressure changes in thorax
Pressure & Volume Changes

Atmospheric pressure 760 mm Hg

Gases flow from areas of high pressure to areas of lower pressure
Pressure & Volume Changes

Atmospheric pressure 760mmHg

Expiration

Respiratory System - Exchange

- Diffusion

Pulmonary Artery
- PO₂ 100
- PₐCO₂ 40

Alveolus
- PO₂ 100
- PₐCO₂ 40

Pulmonary Vein
- PO₂ 100
- PₐCO₂ 40

Pulmonary Capillary

Direction of blood flow
Respiratory System - Exchange

**Transport**
- RBC’s = bus
- Hemoglobin = seats on the bus
- Cardiac output = frequency of bus trips
- Vasculature = freeway

Respiratory System Regulation

- Neural
  - Medulla
  - Pons
  - Cortex
- Chemical chemoreceptors
  - Carotid bodies
  - Aortic bodies
  - Normal drive

Influencing Factors

**Environment:**
- Climate
- Altitude
- Pollution
- Community
- Smoking
- Seasons
Influencing Factors:

- Exercise
- Anxiety
- Health status
  - Obesity
  - Posture
- Drugs
- Age

History and Interview

- SOB
- Cough/sputum
- Activity tolerance
- Allergies
- Smoke pack history
- Past history
- Medication use
- Occupation
- Weight loss
- Nutrition
- Past history

Physical Examination

- General
- Vital signs
  - Pain
  - B.P.
  - Temperature
  - Pulse
  - Respiration
    - Rate
    - Rhythm
    - Pattern
Respiratory Pattern

• Eupnea
• Bradypnea
• Tachypnea
• Cheynes-Stokes
• Kussmaul

Physical Exam

• Inspection & Palpation
  – Color
  – Symmetry
  – Effort
  – Excursion
  – Tactile fremitus

Auscultation

• Locations
  – Anterior
  – Lateral
  – Posterior
• Equipment
  – Stethoscope: diaphragm
Auscultation

- Bronchial
- Bronchovesicular
- Vesicular

Diagnostic Procedures

- Chest x-ray
- Sputum C&S
- RBC
- Hemoglobin
- O₂ saturation
- TB skin test

Signs of Alterations

- Dyspnea
- Cough
- Cyanosis
- Hemoptysis
- Orthopnea
- Adventitious breath sounds
Adventitious Lung Sounds

- Crackles (rales)
  - Fine, medium, coarse
- Wheezes
  - Sibilant – high pitch
  - Sonorous (Rhonchi)
    loud, low, coarse
- Pleural friction rub
  - Dry, rubbing, grating

Hypoxia

- Definition
- Causes
- Clinical signs
- Abnormal respiratory rhythms

Nursing Diagnosis

- Activity intolerance
- Ineffective airway clearance
- Anxiety
- Ineffective breathing pattern
- Fear
- Impaired gas exchange
Nursing Care Planning

- Maintain patent airway
- Decrease work of breathing

Nursing Interventions

- Positioning
- T.C. & D.B.
- Use of metered dose inhalers (MDI’s)
- Incentive spirometry (MSI devices)
- Suctioning
- Intermittent positive pressure breathing (IPPB)

Nursing Interventions

- Oxygen delivery
- Humidification
- Hydration
- Prevention of spread of respiratory infections
- Percussion & Postural Drainage
- Special considerations with COPD
Nursing Interventions

- Teaching
  - Smoking
  - Environment
  - Exercise
  - Flu & pneumococcal vaccine
  - Nutrition
  - Rest periods
- Documentation

<table>
<thead>
<tr>
<th>Classification</th>
<th>Action</th>
<th>Indication</th>
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</thead>
<tbody>
<tr>
<td>Antitussives</td>
<td>Suppress cough reflex</td>
<td>Non-productive cough</td>
</tr>
<tr>
<td>Expectorants</td>
<td>Promote mucous removal</td>
<td>Thick tenacious sputum</td>
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<tr>
<td>Bronchodilators</td>
<td>Relaxes smooth muscles of the bronchioles</td>
<td>Hyper-reactive bronchial contractions</td>
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Summary

- Respiratory function is influenced by anything that affects
  - Ventilation
  - Exchange
  - Oxygen transport
- Nursing role
  - To promote ventilation, exchange and transport