Altered Respiratory Function
Lecture 1

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Objectives

• Safe Effective Care
  – Mechanical ventilation
• Health Promotion and Maintenance
  – Disease prevention
  – Self-care needs
• Psychosocial Integrity
  – Response to illness
  – Role changes
  – Barriers/compliance

• Physiological Integrity
  – Medications
  – Diagnostics/assessment
  – Tubes
  – Complications/prevention
  – Continuity of care
  – Life threatening situations
  – Respiratory disorders
  – Trauma/surgery
  – Intubation
  – pediatrics
Where do you start?
From the beginning...

Subjective Data

- History
- Illnesses
- Vaccines
- Surgeries/injuries/hospitalizations
- Weight loss
- Night sweats/sleep disturbances
- Lung disease/family
- Travel
- **Occupation/Hobbies**
  - Why is this important?
Remember it is a focused assessment....

- **Objective Data...what do you see, hear, feel, smell**
  - Inspect, palpate, percuss, auscultate
  - **What are the parts to the respiratory system?**
    - Upper:
    - Lower:
      » What happens when there is no surfactant?
      » Why?
  - Why would we check the AP Diameter?
What are you focused on.....breathing

• What are your normal breath sounds?

• What are adventitious breath sounds?

  – What might the assessment findings show us with these sounds?
Practice your Phlebotomy

• CBC with Diff
  – A deficiency of HGB could cause ______?  
  – Which is what?  
  – What about the WBC’s?

• ABGs
  – Dear altered pulmonary function,  
  What is your first, middle, & last name?
Respiratory acidosis

• Respiratory acidosis occurs when excess CO2 accumulates in the blood

• What are some examples of Respiratory Acidosis?
Respiratory Acidosis Example

• ABG's:
  • pH 7.31
  • PCO2 55 mm Hg
  • HCO3- 35 mEq/L
Respiratory alkalosis

• Metabolic conditions that occur in association with decreased carbon dioxide in the blood

• What are some causes for Respiratory Alkalosis?
Respiratory Alkalosis Example

• ABG's:
  – pH 7.48
  – PCO2 25 mm Hg
  – HCO3- 28 mEq/L
Metabolic acidosis

• Accumulation of excessive nonvolatile acids, not including PaC02
• Also known as_________________________?
• What are some examples of Metabolic Acidosis?
Metabolic Acidosis Example

• ABG's:
  – pH 7.31
  – PCO2 25 mm Hg
  – HCO3- 20 mEq/L
Metabolic alkalosis

- Acid-base disturbance resulting from over-accumulation of plasma bicarbonate and a below-normal acid level

- What are some examples of Metabolic Alkalosis?
Metabolic Alkalosis Example

• ABG's:
  – pH 7.48
  – PCO2 45 mm Hg
  – HCO3- 33 mEq/L
Getting the facts together.....

- Sputum Specimen
  - Expectoration
  - Tracheal
  - Identifies organisms, abnormal cells

What is C & S?

What is sputum cytology?
Getting the facts together....

- **CXR**
- **CT**
  - What is your role?________________
- **V/Q Scan**
  - What does it stand for?____________
  - What does it rule out?____________
Getting the facts together

• Pulse Oximetry
  – Ideal normal range?__________
  – Measured as?__________
  – What would you do if it was low on reassessment?
  – Manifestations of low levels?__________

• PFT
  – Normally done to determine ____________.

• Capnometry & Capnography does what?

• Skin test
  – PPD (when do you assess site?)
    • What are you looking for?
Still don’t know...Take a deeper look...

- **Endoscopic Examinations**
  - Bronchoscopy
  - Laryngoscopy
  - Mediastinoscopy

- **Thoracentesis**
  - Does what?

- **Lung Biopsy**
  - Does what?
Bronchoscopy

• Insertion of tube in airways
  – View airways
  – Tissue sample for biopsy or culture
  – Really good for staging cancer and removal of secretions that are not cleared by suctioning
  – Complications
    • Pneumothorax (What is this?)
    • Methemoglobinemia (What is the cause?)
Thoracentesis

Aspirate pleural fluid or air from pleural space

• No more than 1000mL at a time – why?
• CXR r/o
  – Pneumothorax (occurs about 24 hrs after)
  – Mediastinal shift
What is a mediastinal shift?

• Complications
  – Reaccumulation of fluid in the pleural space
  – Subcutaneous emphysema
  – Infection
  – Tension pneumothorax

  – What do you do?
Lung Biopsy

• Tissue sampling from the lung to diagnose:
  – Cancer
  – Inflammation
  – Infection
Oxygen Therapy

- Hypoxemia
- Hypoxia
- PaO2 Stands for what?
- SaO2 Stands for what?
- FiO2 Stands for what?
- Hypercarbia
Conditions outside respiratory system that...

• Increase oxygen demand
• Decrease oxygen carrying capabilities of the blood
• Decrease cardiac output

What problems might you see these in?

How would you assess these problems?

What are good Nursing Diagnoses?
Hazards of Oxygenation

- Combustion
- **Oxygen-Induced Hypoventilation**
  - Hypercarbia
  - CO2 narcosis *What is this? What do you do?*
- Toxicity
- Absorption Atelectasis
- Dry the membranes
- Infection
Low Flow Oxygen

- NC
- Simple FM
- Partial rebreather mask
- Non-rebreather mask
High Flow Oxygen

- Venturi mask
- Face tent
- Aerosol mask
- Tracheostomy collar
- T-piece
Positive-Pressure Ventilation

Technique uses positive pressure to keep alveoli open and improve gas exchange without intubation

- **CPAP**
  - continuous positive airway pressure
  Which means what?

- **BiPAP**
  - bi-level positive airway pressure
  Which means what?

Transtracheal oxygen therapy (TTO)
Oxygen at Home

• Patient education
  – Safety

• Methods
  – Compressed gas in tank or cylinder
  – Liquid oxygen in a reservoir
  – Concentrator

Such as what...
Tracheostomy Tube

• Cuffed
• Uncuffed

• What should be the cuff pressure?
Nursing aspect of a tracheostomy

• Confirmation?
• Post-Op Assessment Most important?
• Nursing Diagnoses
• Teachings
Complications of a Tracheostomy/Tube

• Tube Dislodgement/Decannulation
  – Why is this an emergency situation?

• Other complications:
  – Tube obstruction
  – Pneumothorax
  – Subcutaneous emphysema
  – Bleeding
  – infection
Issues r/t Tracheostomy Care

• Tissue damage
• Warming/humidification
• Suctioning
  – Hypoxia
  – Infection
  – Tissue trauma
  – Vagal stimulation/
    Bronchospasms
    (What happens?)
• Trach care

• Hygiene
• Nutrition
• Emotional care
• Body image
• Weaning

How do you know when to suction?
What is the FIRST thing you do?
How do you apply suction?
How long?