Exam 1 Concept Review

Endotracheal Tube care

1. Check symmetry of chest expansion
2. Auscultate breath sounds of anterior and lateral chest bilaterally
3. Obtain capnography or end-tidal CO2 as indicated
4. Ensure chest x-ray obtained to verify proper tube placement
5. Check cuff pressure every 6-8 hours
6. Monitor for signs and symptoms of aspiration
7. Ensure high humidity; a visible mist should appear in the T-piece or ventilator tubing
8. Administer oxygen concentration as prescribed by the primary provider
9. Secure the tube to the patient's face with tape, and mark the proximal end for position maintenance
    a. Cut proximal end of tube if it is longer than 7.5 cm (3 in) to prevent kinking
    b. Insert an oral airway or mouth device if orally intubated to prevent the patient from biting and obstructing the tube
10. Use sterile suction technique and airway care to prevent iatrogenic contamination and infection
11. Continue to reposition patient every 2 hours and as needed to prevent atelectasis and to optimize lung expansion
12. Provide oral hygiene and suction the oropharynx whenever necessary

- Nursing interventions
    - Generally, not left in place longer than 14 days d/t risk of infection and airway injury
    - Hyper oxygenate before suctioning and assess the patient, before, during and after the procedure
    - **Hyper oxygenate for 30 seconds and then suction for no more than 10 seconds (you can only hyper oxygenate for TWO MINUTES)**
    - Insert catheter without applying suction, apply suction while using a rotation motions to remove it
    - Closed suction requires clean gloves
    - Only perform 2 or 3 suction passes

- Possible complications
  - Airway injury
  - **Hypoxia (IF SUCTIONING LASTS TOO LONG)**
  - Nosocomial infections
  - **Dysrhythmias**

Incorrect position of ET tube

- A tube is inserted through the client's nose or mouth for emergency airway management, any other orifice is incorrect
- Mouth intubation is the easiest and quickest form of intubation and is often performed in the emergency department
- Nasal intubation is performed when the client has facial or oral trauma.This route is not used if the client has a clotting problem
- The tip of the ETT should project in the trachea, approximately 3-5 cm from the carina, and a chest x-ray will verify placement

Chest tube Care

Pre-procedure:

- Verify that the consent form is signed
- Reinforce client teaching
  - Breathing will improve when the chest tube is in place
- Assess for allergies to local anesthetics
- Assist the client into the desired position (supine or semi-Fowlers)
- Prepare the chest drainage system prior to the chest tube insertion per the facility's protocol (fill the water seal chamber)
- Administer pain and sedation medications as prescribed
- Prep the insertion site with povidone-iodine or other facility-approved agent

Intra-procedure:

- Assist the provider with insertion of the chest tube application of a dressing to the insertion site, and setup of the drainage system
    - Place the chest tube drainage system below the client's chest level with the tubing coiled on the bed
    - Ensure that the tubing from the bed to the drainage system is straight to promote drainage via gravity
- The nurse should continually monitor vital signs and response to the procedure

Post-procedure:

- Assess VS, breath sounds, I&O, SaO2, color, and respiratory effort as indicated by the status of the client and at least every 4 hr
- Encourage coughing and deep breathing every 2 hr
- Keep the drainage system below the client's chest level, including during ambulation
- Monitor for chest tube placement and function
- Check water seal level
- Document the amount and color of drainage. Report excessive drainage (>70mL/hr)
- Monitor the fluid in the suction control chamber, and maintain the prescribed fluid level
- Ensure the regulator dial on the dry suction device is at the prescribed level
- Check for expected findings of tidaling in the water seal chamber and continuous bubbling only in the suction chamber
- Routinely monitor tubing for kinks, occlusions, or loose connections
- Monitor the chest tube insertion site for redness, pain, infection, and crepitus (air leakage in the subcutaneous tissue)
- Tape all connections between the chest tube and chest tube drainage system
- Position the client in the semi- to high-Fowler's position to promote optimal lung expansion and drainage of fluid from the lungs
- Administer pain medications as prescribed
- Obtain a CXR to verify the chest tube's placement
- Keep 2 enclosed hemostats, sterile water, and an occlusive dressing located at the bedside at all times

- D/t risk of causing a tension pneumothorax, chest tubes are clamped only when prescribed in specific circumstances, such as in the case of an air leak, during drainage system change, accidental disconnection of tubing, or damage to the drainage system

Post removal:

- Provide pain medication 30 min prior
- Assist the provider with sutures and chest tube removal
- Instruct the client to take a deep breath and hold it (increases intrathoracic pressure and reduces risk of air emboli) during chest tube removal
- Apply airtight sterile petroleum jelly gauze dressing; secure in place with heavyweight stretch tape
- Obtain CXR as prescribed; this is performed to verify continued resolution of the pneumothorax, hemothorax, or pleural effusion
- Monitor for excessive wound drainage, signs of infection, or recurrent pneumothorax

Measuring output:

- Document the amount and color of drainage HOURLY for the first 24 hr, then q 8 hr
- Mark the date, hour, and drainage level on the container at the end of each shift
- Report excessive drainage greater than 70 mL/hr
    - Drainage increases with position changes or coughing
- Report drainage that is **CLOUDY** or **RED** to the PCP

Pneumothorax

- Manifestations
    - **DIMINISHED LUNG SOUNDS ON AFFECTED SIDE**
    - **INCREASED RESPIRATORY RATE (EARLIEST SIGN***)**
    - Anxiety
    - Pleuritic pain

- Signs of respiratory distress
  - Tachypnea
  - Tachycardia
  - Hypoxia
  - Cyanosis
  - Dyspnea
  - Use of accessory muscles
- Hyperresonance on percussion due to trapped air
- Asymmetrical chest wall movement

Chest tubes (expected findings in the chambers)

- 2 chambers: water seal- contains 2cm of water
- Normal fluctuation of water within the water-seal chamber is called tidaling (Investigate any cessation of tidaling, this may mean the tube is occluded)
- Constant bubbling in the suction chamber
  - **1st chamber drainage collection**
- Receives fluid from the pleural or mediastinal space
  - **2nd chamber water seal**
- Contains 2 cm of water acts as a 1-way valve
- Incoming air enters the collection chamber & bubbles up through the water
- Water prevents backflow of air into the client
- Brisk bubbling often occurs when a pneumothorax is initially evacuated
- Intermittent bubbling during exhalation, coughing, or sneezing may be observed as long as there is air in the pleural space
- When air leak resolves and lung become more fully expanded bubbling ceases
- Normal fluctuation of water w/in the **water-seal chamber** is called **tidaling**; this up and down movement in concert w/ respiration reflects intrapleural pressure changes during inspiration and expiration
- Investigate any cessation of tidaling, since this may signify an occluded chest tube
  - **3rd chamber - suction control (can be wet or dry)**
- Here we expect to see **constant**, slow & steady bubbling which indicates the suction is functioning properly

- **UNEXPECTED FINDING: CONSTANT BUBBLING IN THE WATER SEAL CHAMBER**

Blood Administration (important VS)

- **↑Temperature / BP / SpO2**
- **Stay with the client and monitor – Especially during the first 15 mins**

Blood Administration (Hgb <10 g/dL)

- **Nursing interventions**
  - **Pre-transfusion**
    - **Check VS before administration**
      - **↑Temperature / BP / SpO2**
    - **Type & Cross**
      - **Blood band bracelet**
    - **Large bore IVs**
      - **18 G or 20 G – so blood cells don't lyse**
      - **Prime tubing with 0.9% NaCl ONLY**
    - **Assess pt for previous reaction to blood products**
    - **2 RN verification for correct pt and product**
      - **Double check correct product and compare to ID band**
  - **Intra-transfusion**
    - **Check / Monitor VS**
      - **↑Temperature / BP / SpO2**
      - **Stay with pt and monitor – Especially during the first 15 mins**
    - **Monitor rate of infusion**
    - **Monitor for infusion reaction**
    - **Give within 4 hr packed RBC**
  - **Post-transfusion**
    - **Check VS**
      - **↑Temperature / BP / SpO2**

- **Identifying s/sx of transfusion reactions**
  - **Dyspnea (SOB)**
    - **High Fowler's position is first action**
  - **Redness at site of infusion and systemically**
  - **Flank pain**
  - **HTN**
  - **Fever**
  - **Tachycardia**

Pulmonary embolism nursing care and medications

- Manifestations: anxiety, feelings of impending doom, **SUDDEN ONSET OF chest PAIN**, pain upon inspiration and chest wall tenderness, dyspnea and air hunger, cough, hemoptysis
- Nursing Interventions: **administer oxygen therapy** to relieve hypoxemia and dyspnea, position the patient in high fowlers, initiate and maintain IV access, administer meds as prescribed, assess respiratory status every 30 minutes, assess cardiac status, provide emotional support and comfort to control anxiety, and monitor changes in LOC and mental status
- Pharmacologic treatment: anticoagulants, direct factor Xa inhibitor, and thrombolytic therapy – **HEPARIN**
- Labs: Chest Xray, labs (ddimer), CT

Acute respiratory failure manifestations

- **Manifestations – Prone Positioning!**
  - Dyspnea, Orthopnea
  - Cyanosis, Pallor
  - Hypoxemia, Tachycardia
  - Confusion, Irritability, Agitation
  - Restlessness, Hypercarbia
  - Accessory muscle use

Priority care for complications (ABCs)

- **A: airway**
  - **Inhalation injury (e.g. fire victim)**
  - **Obstruction (partial or complete) from foreign bodies, debris (vomitus), or tongue**
  - **Penetrating wounds and/or blunt trauma to upper airway**
- **B: breathing**
  - **Anaphylaxis**
  - **Flail chest w/pulmonary contusion**
  - **Hemothorax**
  - **Pneumothorax (e.g. open, tension)**
- **C: circulation**
  - **Direct cardiac injury (e.g. MI, trauma)**
  - **Pericardial tamponade**
  - **Shock (e.g. massive burns, hypovolemia)**
  - **Uncontrolled external hemorrhage**
  - **Hypothermia**

Identify dysrhythmias

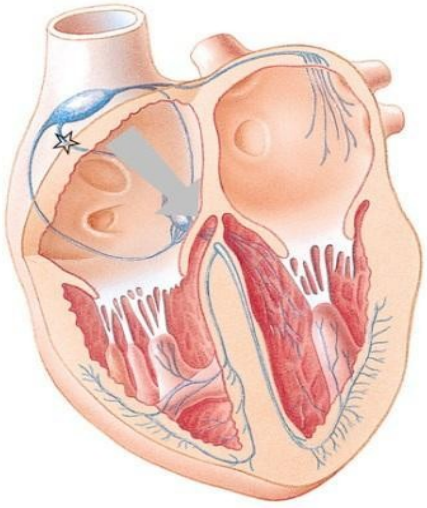
- Normal sinus rhythm
  - Regularity: The R-R intervals are constant, the rhythm is regular
  - Rate: The atrial and ventricular rates are equal; heart rate is between 60-100 bpm
  - P-wave: The P-waves are uniform. There is one P-wave in front of every QRS complex
  - PRI: The PR interval measures between 0.12 and 0.20 seconds, the PRI measurement is constant across the strip
  - The QRS complex measures less than 0.12 second

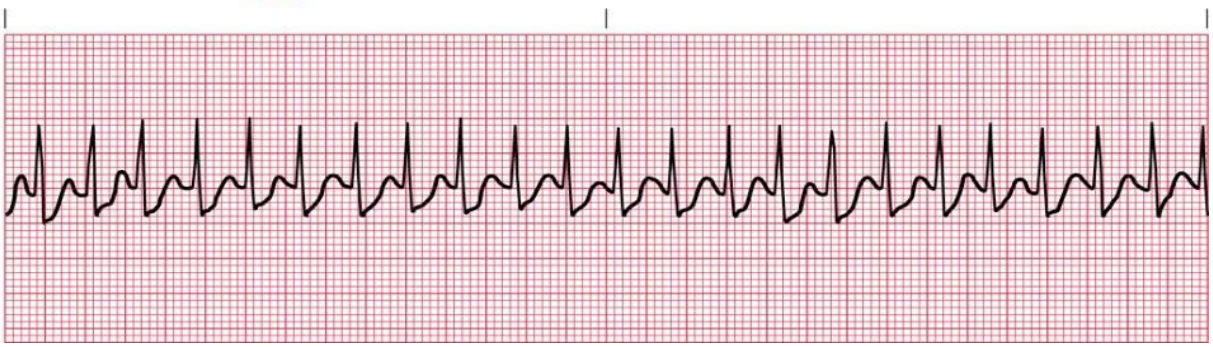
- Sinus Bradycardia
    - Regularity: The R-R intervals are constant, the rhythm is regular
    - Rate: The atrial and ventricular rates are equal; heart rate is less than 60 bpm
    - P-wave: The P-waves are uniform. There is one P-wave in front of every QRS complex
    - PRI: The PR interval measures between 0.12 and 0.20 seconds, the PRI measurement is constant across the strip
    - The QRS complex measures less than 0.12 second
- Sinus Tachycardia
    - Regularity: The R-R intervals are constant, the rhythm is regular
    - Rate: The atrial and ventricular rates are equal; heart rate is greater than 100 bpm (usually between 100-160 bpm)
    - P-wave: The P-waves are uniform. There is one P-wave in front of every QRS complex
    - PRI: The PR interval measures between 0.12 and 0.20 seconds, the PRI measurement is constant across the strip
    - The QRS complex measures less than 0.12 second
- Sinus Arrhythmia
    - Regularity: The R-R intervals vary, the rate changes with the patient's respirations
    - Rate: The atrial and ventricular rates are equal; heart rate is usually in a normal range (60-100 bpm) but can be slower
    - P-wave: The P-waves are uniform. There is one P-wave in front of every QRS complex
    - PRI: The PR interval measures between 0.12 and 0.20 seconds, the PRI measurement is constant across the strip
    - The QRS complex measures less than 0.12 second
- Premature Atrial Contraction (PAC's)
    - Regularity: Since this is a single premature ectopic beat, it will interrupt the regularity of the underlying rhythm
    - Rate: The overall rate will depend on the rate of the underlying rhythm

    - P-wave: The P-wave of the premature beat will have a different morphology than the P-waves of the rest of the strip. The ectopic beat will have a P-wave, but it can be flattened, notched, or otherwise unusual. It may be hidden within the T-wave of the preceding complex
    - PRI: The PR interval measures between 0.12 and 0.20 seconds, but can be prolonged; the PRI of the ectopic will probably be different from the PRI measurements of the other complexes
    - The QRS complex measures less than 0.12 second
- Atrial Tachycardia
    - Regularity: The R-R intervals are constant, the rhythm is regular
    - Rate: The atrial and ventricular rates are equal; the heart rate is usually between 150-250 bpm
    - P-wave: There is one P-wave in front of every QRS complex. The configuration of the P-wave will be different from that of sinus P-waves; they may be flattened or notched because of the rapid rate, the P-waves can be hidden in the T-waves of the preceding beats
    - PRI: The PR interval measures between 0.12 and 0.20 second and constant across the strip. The PRI may be difficult to measure if the P-waves is obscured by the T-waves
    - The QRS complex measures less than 0.12 second
- Atrial Flutter
    - Regularity: the atrial rhythm is regular. The ventricular rhythm will be regular if the AV node conducts impulses through a consistent pattern. If the pattern varies, the ventricular rate will be irregular
    - Rate: Atrial rate is between 250-350 bpm. Ventricular rate will depend on the ratio of impulses conducted through to the ventricles
    - P-wave: When the atria flutter, they produce a series of well-defined P-waves. When seen together, these “Flutter” waves have a saw-tooth appearance
    - PRI: Because of the unusual configuration of the P-wave (Flutter wave) and the proximity of the wave to the QRS complex. It is often impossible to determine a PRI in the arrhythmia. Therefore, the PRI is not measured in Atrial Flutter

- QRS: The QRS complex measures less than 0.12 second; measurement can be difficult if one or more Flutter waves is concealed within the QRS complex

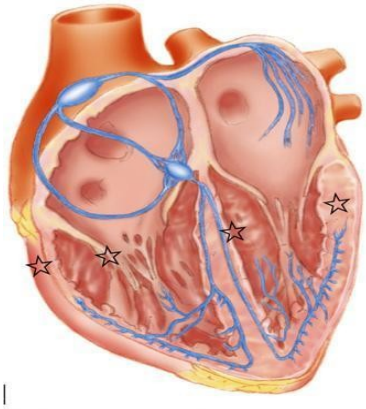
- **Atrial Fibrillation**
  - Catotid and radial pulses won't match, apical and radial pulses won't match
  - Regularity: The atrial rhythm is unmeasurable; all atrial activity is chaotic. The ventricular rhythm is grossly irregular, having no patter to its irregularity
  - Rate: The atrial rate cannot be measured because it is so chaotic; research indicates that it exceeds 350 bpm. The ventricular rate is significantly slower because the AV node blocks most of the impulses. If the ventricular rate is 100 bpm or less, the rhythm is said to be "controlled." If it is over 100 bpm, it is considered to have a "rapid ventricular response" and is called "uncontrolled."
  - PRI: Since there are no P-waves, the PRI cannot be measured
  - QRS: The QRS complex measurement should be less than 0.12 second
- Supraventricular Tachycardia (SVT)
  -





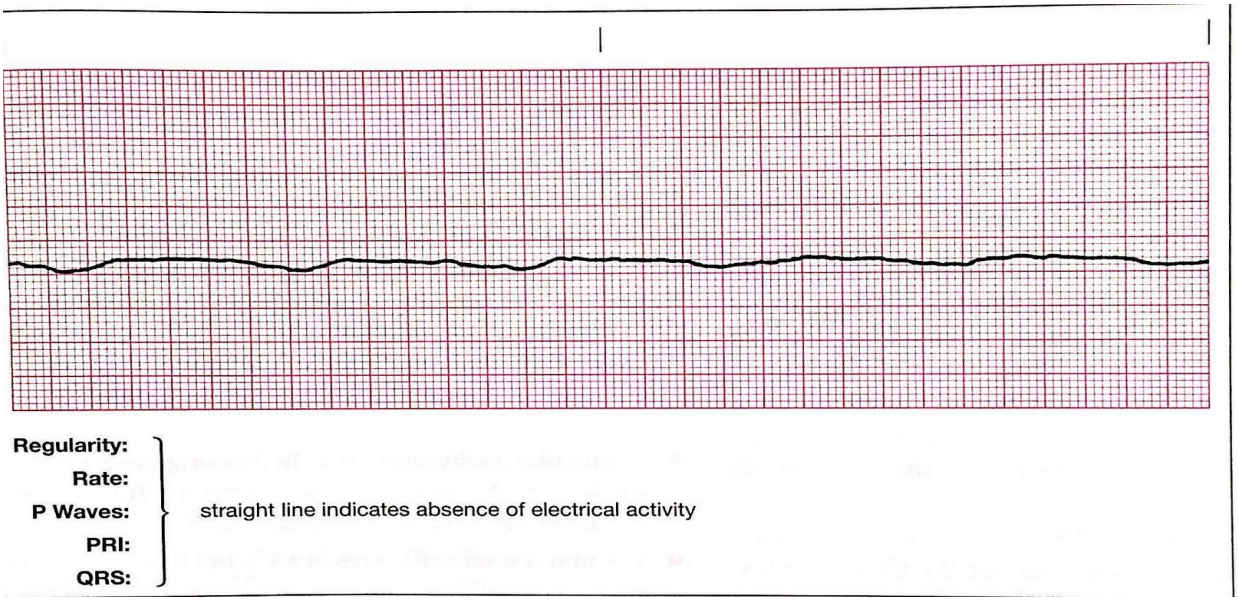
- First Degree Heart Block
    - Regularity: This will depend on the regularity of the underlying rhythm
    - Rate: The rate will depend on the rate of the underlying rhythm
    - P-Waves: The P-waves will be upright and uniform. Each P-wave will be followed by a QRS complex
    - PRI: The PRI will be constant across the entire strip, but it will always be greater than 0.20 second
    - QRS: The QRS complex measurement will be less than 0.12 second
- Second degree Type I (Wenckebach)
    - Regularity: The R-R interval is irregular in a pattern of grouped beating
    - Rate: Since some beats are not conducted, the ventricular rate is usually slightly slower than normal (<100 bpm). The atrial rate is normal (60-100 bpm)
    - P-Waves: The P-waves are upright and uniform. Some P-waves are not followed by QRS complexes
    - PRI: The PR intervals get progressively longer, until one P-wave is not followed by a QRS complex. After the blocked beat, the cycle starts again
    - QRS: The QRS complex measurement will be less than 0.12 second
- Second Degree Heart Block Type II
    - One or more P-waves not getting through, the atrial rate is 2-4x faster, the ventricular rate is slow to normal
- Third Degree Heart Block (Complete Heart Block)
    - Regularity: Both the atrial and the ventricular foci are firing regularly; this the P-P intervals and the R-R intervals are regular
    - Rate: The atrial rate will usually be in a normal range. The ventricular rate will be slower. If a junctional focus is controlling the ventricles, the rate will be 40-60 bpm
    - P-Waves: The P-waves are upright and uniform. There are more P-waves than QRS complexes
    - PRI: Since the block at the AV node is complete, none of the atrial impulses is conducted through to the ventricles. There is no PRI. The

P-waves have no relationship to the QRS complexes. You may occasionally see a P-wave superimposed on the QRS complex
    - QRS: If the ventricles are being controlled by a junctional focus, the QRS complex will measure less than 0.12 second. If the focus is ventricular, the QRS will measure 0.12 second or greater
- Ventricular Tachycardia (V-tach/VT)
    - In VT you will see a succession of PVCs across the strip at a rate of about 150-250 bpm
    - Regularity: This rhythm is usually regular, although it can be slightly irregular
    - Rate: Atrial rate cannot be determined. The ventricular rate range is 150-250 bpm. If the rate is below 150 bpm, it is considered a slow VT. If the rate exceeds 250 bpm, it is called Ventricular Flutter
    - P-waves: None of the QRS complexes will be preceded by P-waves. You may see dissociated P-waves intermittently across the strip
    - PRI: Since the rhythm originates in the ventricles, there will be no PRI
    - QRS: The QRS complexes will be wide and bizarre, measuring at least 0.12 second. It is often difficult to differentiate between the QRS and the T-waves
- Torsades de Pointes
    -

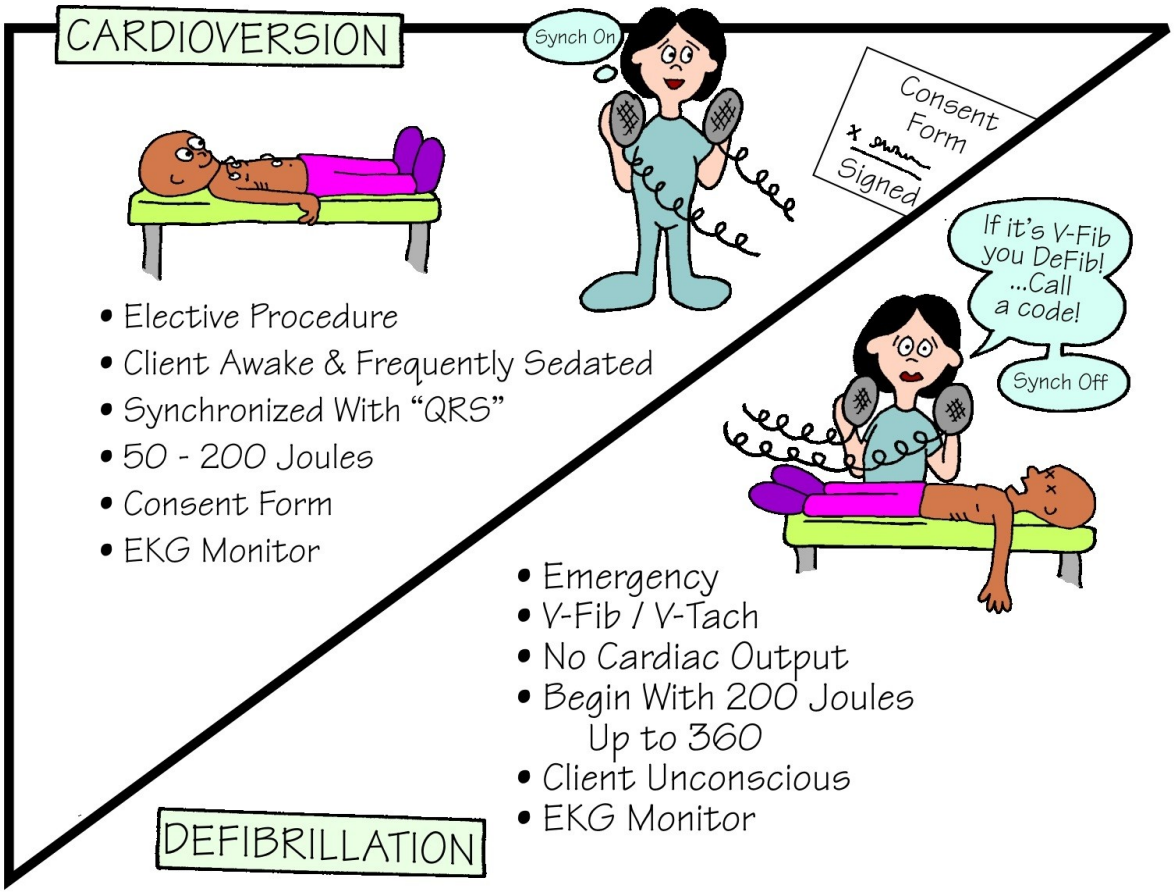


- Ventricular Fibrillation

- Asystole



Defibrillation & Cardioversion



- Defibrillation
  - Used in emergency situations as treatment of choice for
    - Ventricular fibrillation
    - Ventricular tachycardia without a pulse
  - Sooner a defibrillator is utilized in VF or pulseless VT, the better the survival rate
  - Delivery of the current is immediate and unsynchronized

- Electrical Cardioversion
  - Involves the delivery of a "timed" electrical current, synchronized with the ECG on a cardiac monitor
    - Atrial dysrhythmias
    - Supraventricular Tachycardia (SVT)
    - Ventricular tachycardia with a pulse

- Pre-procedure
  - Explain the procedure to the client, and obtain consent
  - Administer oxygen
  - Document pre-procedure rhythm
  - Have emergency equipment available
  - Digoxin is held for 48 hr prior to elective cardioversion
- Intra-procedure
  - Administer sedation as prescribed
  - Ensure proper placement of leads and machine settings (synchronized), including joules to be delivered
  - Monitor client in a lead that provides an upright QRS complex
  - All staff must stand clear of the client, equipment connected to the client, and the bed when a shock is delivered
  - Perform CPR/defibrillate/give anti-dysrhythmics if necessary
- Post-procedure
  - Monitor VS, assess airway patency, and obtain an ECG
  - Provide client/family with reassurance and emotional support
  - Document the following
    - Pre-procedure rhythm
    - Number of defibrillation or cardioversion attempts, energy settings, time, and response
    - Client's condition and state of consciousness following procedure
    - Skin condition under the electrodes
- Complications
  - Embolism
    - Can dislodge blood clots causing a PE, CVA, or MI
  - Decreased cardiac output and heart failure
    - Can damage heart tissue and impair heart function

Reducing CAD

- **Modifiable risk factors can be changed to benefit the pt's health (e.g. tobacco cessation, increase physical activity, increase healthy diet)**
- Risk factors
    - **Non-modifiable risk factors**
        - Increasing age
        - Gender (**MEN OLDER THAN 45**, more common in men than in women until 75)
        - Ethnicity (more common in **AA** than white males)
        - **Genetic predisposition and family history of heart disease**
    - **Modifiable risk factors**
        - Serum lipids- total cholesterol >200, triglycerides >150, LDL >160, HDL <40 in men and <50 in women
        - Elevated CRP
        - BP >140/90
        - Diabetes
        - Tobacco use
        - Physical inactivity
        - Obesity: waist circumference >102 cm in men and >88 cm in women
        - Fasting glucose >100
        - Psychosocial risk factors (depression, hostility, anger, stress)

Ventilator care/checklist

- HOB >30 degrees
- Temperature
- DVT prophylaxis
- Ulcer prophylaxis
- WBC count
- Maximum FiO2
- Minimum FiO2
- Maximum Peep
- Minimum Peep

Myocardial infarction labs

- **Diagnostic testing**
  - **12-lead ECG changes**
    - **PCP needs to read within 10 mins**
    - **NSTEMI = no ST elevation**
    - **STEMI = ST elevation facing the area of infarction w/T-wave hyperactivity**
  - **Laboratory blood specimens**
    - **Cardiac enzymes**
      - **Troponin I / Troponin T**
      - **Myoglobin**
      - **CKMB**
  - **Cardiac Stress Testing**
  - **Echocardiography**

Myocardial infarction manifestations

- **MONA**
  - **Morphine**
  - **Oxygen**
  - **Nitroglycerin**
  - **Aspirin 162-325 mg**
- Supplemental oxygen
- Beta-blocker
- Angiotensin-converting enzyme inhibitor within 24 hours
- Anticoagulation with heparin and platelet inhibitors
- Evaluate for indications for reperfusion therapy:
  - Percutaneous coronary intervention
  - Thrombolytic (fibrinolytic) therapy
- Continue therapy as indicated:
  - IV heparin, low-molecular-weight heparin, bivalirudin, or fondaparinux •
  - Clopidogrel (Plavix)

- Glycoprotein IIb/IIIa inhibitor
- Bed rest for a minimum of 12–24 hours

Alteplase nursing tasks

- Medication should be given in the first 30 minutes of pts arrival
- Loading dose is given for a rapid therapeutic effect. Medication is in powder form and needs to be reconstituted with sterile water
- Minimize the number of times the patient's skin is punctured and avoid intramuscular injections.
- Draw blood for laboratory tests when starting the IV line.
- Start IV lines before thrombolytic therapy; designate one line to use for blood draws.
- Avoid continual use of noninvasive blood pressure cuff.
- Monitor for acute dysrhythmias and hypotension.
- Monitor for reperfusion: resolution of angina or acute ST-segment changes.
- Check for signs and symptoms of bleeding: decrease in hematocrit and hemoglobin values, decrease in blood pressure, increase in heart rate, oozing or bulging at invasive procedure sites, back pain, muscle weakness, changes in level of consciousness, complaints of headache.
- Treat major bleeding by discontinuing thrombolytic therapy and any anticoagulants; apply direct pressure and notify the physician immediately.
- Treat minor bleeding by applying direct pressure if accessible and appropriate; continue to monitor.

Sedative and paralytic medications

- Sedatives
  - Propofol
  - Diazepam
  - Lorazepam

    - Midazolam
- Neuromuscular blocking agents (paralytic medications)
    - Pancuronium
    - Atracurium
    - Vecronomium

Atelectasis manifestations

- Increasing dyspnea s
- Diminished breath sounds in lower lobes
- Cough and sputum production
- If large amount of lung tissue → marked respiratory distress may be observed
- Tachycardia
- Tachypnea
- Pleural pain
- Central cyanosis (late sign of hypoxemia)

Flail chest manifestations

- **Unequal chest expansion (the unaffected side of the chest will expand, while the affected side can appear to diminish in size or remain stationary)**
    - **Client's chest moves inward during inspiration and bulges out during expiration**
- **Paradoxical chest wall movement (inward movement of segment during inspiration, outward movement of segment during expiration)**
- **Tachycardia**
- **Hypotension**
- **Dyspnea**
- **Cyanosis**

- **Anxiety**
- **Chest pain**

Chest tube indications

- **Unexpected finding**
  - **Constant bubbling in the water seal chamber**
- **Air leaks result if a connection is not taped securely**
  - **Monitor the water seal chamber for continuous bubbling (air leak finding). If observed, locate the source of the air leak, and intervene accordingly (tighten the connection, or replace drainage system)**
  - **Check all connections**
- **Accidental disconnection, system breakage, or removal can occur at any time**
  - **If the tubing separates, instruct the client to exhale as much as possible and to cough to remove as much air as possible from the pleural space**
  - **If the chest tube drainage system is compromised, immerse the end of the chest tube in sterile water to restore the water seal**
  - **If the chest tube is accidentally removed, dress the area with dry, sterile gauze**
- **Tension Pneumothorax**
  - **Sucking chest wounds, prolonged clamping of the tubing, kinks, or obstruction in the tubing, or mechanical ventilation with high levels of PEEP can cause a tension pneumothorax**
  - **Assessment findings include**
    - **Tracheal deviation**
    - **Absent breath sounds on one side**
    - **Distend neck veins**
    - **Respiratory distress**
    - **Asymmetry of the chest**
    - **Cyanosis**

Intubation respiratory monitoring

- Monitor
  - Vital signs, ABGs, CXR, LOC
  - Tube placement (maintain patent airway)
  - Assess respiratory status every 1-2 hr
  - Monitor and document ventilator settings hourly
  - Monitor vent alarms
  - Hypoxemia
  - Dysrhythmias
  - Aspiration

Valvular heart disease nursing care

- Monitor current weight and note recent changes
- Assess heart rhythm (can be irregular or bradycardic, assess for murmur)
- Administer hemodynamic monitoring; maintain fluid and sodium restriction
- Assist the client to conserve energy

Pacemaker education

- When the heart's normal pacemaker is unreliable and causes bradyarrhythmias, it becomes essential to restore ventricular function. This can be done by applying an artificial stimulus to the heart muscle (pacemaker)
- Pacemaker induced depolarization is called capture
- Pacemakers can be temporary or permanent
- Fixed rate (asynchronous): Fires at a constant rate without regard for the heart's electrical activity

- Demand mode (synchronous): Detects the heart's electrical impulses and fires at a preset rate only if the heart's intrinsic rate is below a certain level. Pacemaker response modes include the following
    - Tachydysrhythmia function: Can overpace a tachydysrhythmia and/or deliver an electrical shock
    - Cardoverter defibrillator

Modifiable and nonmodifiable risk factors for CAD

- Risk factors
    - **Non-modifiable risk factors**
        - Increasing age
        - Gender (**MEN OLDER THAN 45**, more common in men than in women until 75)
        - Ethnicity (more common in **AA** than white males)
        - **Genetic predisposition and family history of heart disease**
    - **Modifiable risk factors**
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        - Elevated CRP
        - BP >140/90
        - Diabetes
        - Tobacco use
        - Physical inactivity
        - Obesity: waist circumference >102 cm in men and >88 cm in women
        - Fasting glucose >100
        - Psychosocial risk factors (depression, hostility, anger, stress)

Pericarditis treatment

- Medical Management – NOT Indomethacin b/c it decreases coronary blood flow!

- NSAIDs
  - Prescribed for pain relief during acute phase
  - Helps reabsorb fluid in patients w/rheumatic pericarditis
- Colchicine
  - Severe pericarditis and does not respond w/NSAIDs
  - Can also be utilized in the acute stage in place of NSAIDs
- Corticosteroids
  - Severe Pericarditis or if not responding to NSAIDs
  - If contraindication to NSAIDs or for specific diseases (e.g. pregnancy)

Hypertensive crisis treatment

- **Severely elevated BP divided into two types that require emergent treatment**
  - **Hypertensive Emergency**
    - **Medications that have immediate effects are necessary**
    - **IV vasodilators frequently used initially**
      - **Nitroprusside (Nitropress)**
      - **Nicardipine (Cardene)**
      - **Clevidipine (Cleviprex)**
      - **Enalaprilat (Vasotec)**
      - **Nitroglycerin**
    - **Labetalol also frequently used with nicardipine for quick blood pressure reduction**
    - **Evaluate pt's fluid volume status; prepare for administration of NS to support BP if indicated**
  - **Hypertensive Urgency**
    - **Oral doses of fast-acting agents**
      - **Beta-adrenergic blockers (i.e. labetolol)**
      - **ACE inhibitors (i.e. captopril)**
      - **Alpha2 agonists (i.e. clonidine)**
    - **Goal is to normalize BP within 24-48 hr of treatment**

AAA manifestations

- Constant gnawing feeling in abdomen
- Flank or back pain – pressure on the nerves cause this pain
- Pulsating abdominal mass (do NOT palpate, can cause rupture)
- Bruit over the area of the aneurysm
- Elevated blood pressure (unless in cardiac tamponade or rupture of aneurysm)
- Indications of a rupturing abdominal aortic aneurysm include constant, intense back pain; falling blood pressure; and decreasing hematocrit

Bronchoscopy (diagnostic/nursing care)

- Can detect tumors, signs of infection, excess mucus in the airways, bleeding, or blockages in the lungs
- Can take samples of mucus or tissue for other laboratory tests
- Can insert airway stents or tubes to allow airway patency
- Pre-procedure
    - Informed consent
    - Remove dentures, if applicable
    - NPO for 4-8 hr; assess gag reflex
- Intra-procedure
    - Monitor VS, respiratory pattern, and oxygenation
- Post-procedure
    - Continue to monitor VS, respiratory pattern, and LOC
    - Assess gag reflex
    - Client not discharge until adequate cough reflex and respiratory effort are present
- Expected findings
    - Sore throat
    - Cough
    - Blood-tinged sputum
    - Hoarse voice

Cardiac Catheterization nursing care

- Access sites
  - Femoral artery
  - Brachial
- **Nursing interventions**
  - Ensure consent is signed
  - Maintain NPO for at least 8 hours
  - Assess for iodine/shellfish allergy
  - Assess renal function prior to the introduction of contrast dye
  - Administer pre-medications as prescribed
  - Assess VS every 15 min x4, every 30 min x2, every 1 hr x4, and then every 4 hours
  - **Assess groin site for bleeding and hematoma formation**
  - **Maintain bed rest in supine position with extremity straight for up to 6 hours**
  - Continuous cardiac monitoring
  - Administer anti-platelet, anti-anxiety, pain medication as prescribed