Exam 1 Concept Review

1. Endotracheal Tube care
    a. Suctioning
        i. Insert catheter w/o suctioning → can injure the airway
        ii. After insertion, apply suction while rotating and pulling out the tube (no longer than 10 seconds)
        iii. Hyper oxygenate
    b. Not left in place for longer than 14 days
    c. Have an ambu bag hooked up to O2 and ready to go → 15L
    d. Set up suction and yankeur
    e. Administer sedation and neuromuscular blocking agents
    f. Ensure the intubation attempts does not last longer than 30 seconds and then reoxygenate before another attempt to intubate
    g. Monitor VS and check tube placement
    h. Auscultate for breath sounds bilaterally after intubation. Observe for symmetric chest movement
    i. Stabilize the endotracheal tube with a tube holding device or secure with tape
    j. Monitor for hypoxemia, dysrhythmias, and aspiration
2. Incorrect position of ET tube
    a. Placing ET in right main bronchus → pull back ET tube and reassess
    b. Common signs you are in the right main bronchus
        i. Right sided breath sounds heard but left sided breath sounds are absent
        ii. Left sided chest wall expansion is absent
        iii. Possible low SpO2
3. Chest tube Care
    a. Verify consent is signed
    b. Water seal filled to 2 cm sterile water
    c. Administer pain meds as prescribed → provide adequate pain control
    d. Prep insertion site w/ povidone-iodine
    e. Conscious sedation → ask abt allergies
    f. Supplemental O2 PRN
    g. Supine when placing
    h. Monitor drainage
    i. Re-expansion pulmonary edema → treat!
        i. Pt coughing, clamp the tube for a period of time, allow cough to subside before removing more fluid
    j. Place drainage system <u>below the level</u> of the pt's chest → during ambulation too!
    k. Ensure <u>tubing is straight</u> to promote drainage via gravity
        i. Look for kinks, occlusions or loose connection
    l. Monitor VS, breath sounds, SaO2, respiratory effort Q4 hrs
    m. Encourage coughing and deep breathing Q2hr
    n. Keep pt in fowlers/semi-fowlers to promote optimal lung expansion and drainage
    o. CXR to verify placement
    p. Clamp only when prescribed! → tension pneumothorax
        i. Air leak
        ii. During drainage system change
        iii. Accidental disconnection of tubing
        iv. Damage to the drainage system
    q. Apply airtight sterile petroleum gauze dressing

4. Pneumothorax
    a. Presence of air or gas in the pleural space that causes lung collapse
    b. Tension: air enters the pleural space during inspiration through a one way valve and is not able to exit upon expiration
    c. Spontaneous: no trauma, a small bleb on the lung ruptures and air enters the pleural space
    d. Hemothorax: accumulation of blood in the pleural space

    e. Findings:
        i. Anxiety, pleuritic pain, signs of respiratory distress, tracheal deviation Ito the unaffected side), reduced or absent breath sounds, asymmetrical chest wall, hyperresonance on percussion, dull percussion (hemothorax), subcutaneous emphysema
    f. Treat: thoracentesis, chest tube
5. Chest tubes (expected findings in the chambers)
    a. Water seal chamber: tidaling
        i. Not tidaling: obstruction in system or lung re-expansion
        ii. Continuous bubbling: air leak in the system
    b. Suction chamber: bubbling
6. Blood Administration (important VS)
    a. TEMPERATURE!!
7. Blood Administration (administration times)
    a. Begin administration w/in 30 minutes of receiving blood
    b. Administer PRBCs within 4 hrs
8. Blood Administration (monitoring times)
    a. 15 minutes
9. Blood Administration (reactions)
    a. Steps to take w/ Reaction
        i. STOP THE INFUSION
        ii. Assess pt and vitals
            1. Initiate CPR if necessary
        iii. Maintain patent IV with NS
        iv. Notify provider
        v. Administer meds as ordered
        vi. Monitor Output
        vii. Collect blood and urine
        viii. Return blood bag and tubing to blood bank
    b. Acute Hemolytic Reaction
        i. MOST DANGEROUS → potentially life threatening
        ii. Due to ABO or Rh incompatibility
        iii. S&S
            1. Fever
            2. Chills
            3. Low back pain
            4. Nausea
            5. Chest tightness
            6. Dyspnea
            7. Anxiety
    c. Febrile Non-hemolytic Reaction
        i. MOST COMMON
        ii. Sensitivity to donor leukocytes or other blood components
        iii. Pts w/ frequent blood transfusions
        iv. Use a filter to prevent reaction
        v. Check TEMP!
        vi. S&S
            1. Chills
            2. Fever (>1 degree Celsius)
            3. Flushing
            4. Anxiety
            5. Muscle pain
            6. Headache
    d. Allergic Reaction
        i. Sensitivity reaction to something w/in the blood product (probably a preservative)

ii. Administer Benadryl
iii. S&S
1. Local erythema
2. Hives
3. Itching
4. Pruritis

e. Bacterial Contamination
i. Contaminated blood!!
ii. Blood cultures
iii. Sepsis reaction
iv. S&S
1. Tachycardia
2. Hypotension
3. Fever
4. Chills
5. V/D
6. Shock

f. Transfusion-Associate Circulatory Overload (TACO)
i. Infusion is too fast or pt is unable to tolerate infusion rate
ii. Common in pts w/ CHF, renal dysfunction, advanced age, acute MI
iii. S&S
1. Cough
2. Dyspnea
3. Distended jugular veins
4. Pulmonary congestion
5. HTN
6. Tachycardia
7. Bounding pulse
8. Restless

g. RN duties: elevate HOB, monitor respiratory distress, provide O2, administer diuretics

10. Blood Administration (fluids to infuse with)
a. Filter needle and NS → make sure blood doesn't hemolyze
b. Admin 1-2 mL/min and increase as pt tolerates

11. Blood Administration (consent, verification, nursing care)
a. Check VS prior to admin
b. Type and cross will be completed
c. Need 18-20 gauge needle to prevent lysing of RBCs
d. Ask about previous blood reactions
e. 2 RNs must verify correct pt and product!
f. Monitor older pts for SOB
g. Do not mix with any other IV's or meds → can cause the blood to hemolyze

12. Pulmonary embolism nursing care and medications
a. Administer O2 to relieve hypoxemia and dyspnea
b. Position in High fowler's
c. Initiate and maintain IV access
d. Admin meds as prescribed
e. Assess respiratory status q30 min
i. Auscultate lung sounds
ii. Measure rate, rhythm, and ease of respirations
iii. Inspect skin color and capillary refill
iv. Examine for position of trachea

f. Assess cardiac status
i. Compare BP in both arms
ii. Palpate pulse quality

iii. Check for dysrhythmias on cardiac monitor
iv. Examine neck for distended neck veins
v. Inspect the thorax for petechiae

g. Provide emotional support an comfort to control client anxiety
h. Monitor changes in LOC and mental status
i. Meds
    i. Anticoagulants
        1. Heparin, enoxaparin, warfarin, fondaparinux are used to prevent clots from getting larger or additional clots from forming
        2. RN considerations
            a. Assess for contraindications (active bleeding, PUD, hx of stroke, recent trauma)
            b. Monitor bleeding times: PT and INR for warfarin, PTT for heparin and CBC
            c. Monitor for side effects of anticoagulants (thrombocytopenia, anemia, hemorrhage)
    ii. Direct factor Xa inhibitor
        1. Rivaroxaban (xarelto) binds directly w/ active center of factor Xa, which inhibits the production of thrombin
        2. RN considerations
            a. Assess for bleeding from any site
    iii. Thrombolytic therapy
        1. Alteplase, reteplase, Tenecteplase used to dissolve blood clots and restore pulmonary blood flow
        2. Similar side effects and contraindications as anticoagulants

13. Acute respiratory failure manifestations
    a. Dyspnea
    b. Orthopnea
    c. Cyanosis
    d. Pallor
    e. Hypoxemia
    f. Tachycardia
    g. Confusion
    h. Irritability or agitation
    i. Restlessness
    j. Hypercarbia (high levels of carbon dioxide in the blood)
14. Priority care for complications (ABCs)
    a. Airway
    b. Breathing
    c. Circulation
15. Identify dysrhythmias
    a. Is the rhythm regular or irregular? (r-r interval)
    b. What is the rate? (>100 or <60 ??)
    c. Is there a p wave? One for every QRS??
    d. Are the PR intervals consistent? Within normal range? Do they vary?
        i. PR interval: 0.12-0.20 seconds
    e. Are all QRS complexes equal in duration? What is the measurement? Is it w/in normal limits? Do they all look alike?
        i. 0.04-0.12 seconds
16. Defibrillation & Cardioversion
    a. Defibrillation
        i. V-fib
        ii. V-tach w/o a pulse
        iii. Used in emergency situations → not used on conscious peeps
        iv. Delivery of current is immediate and unsynchronized
    b. Cardioversion
        i. Atrial dysrhythmias
        ii. SVT

iii. V-tach w/ a pulse
iv. Delivery of a “timed” electrical current to terminate a tachydysrhythmia
v. Synchronized w/ ECG on a cardiac monitor

17. Reducing CAD
    a. Hyperlipidemia
    b. Cigarette smoking, tobacco use
    c. HTN
    d. Diabetes
    e. Metabolic syndrome
    f. Obesity
    g. Physical inactivity
    h. Low saturated fat diet, high fiber
    i. Mediterranean diet: vegetables, fish, restricted red meat
    j. Vegetarian diet
18. Ventilator care/checklist
    a. HOB >30 degrees
    b. Temperature
    c. DVT Prophylaxis
    d. Ulcer Prophylaxis
    e. WBC count
    f. Maximum FiO2
    g. Minimum FIO2
    h. Maximum Peep
    i. Minimum Peep
19. Myocardial infarction labs
    a. Troponin C, I, T
        i. ↑ can be detected w/in few hours of MI, elevated up to 2 wks after
    b. Creatinine Kinase
        i. CK-MB
            1. Damage to cardiac cells
            2. Increase w/in a few hrs, peak w/in 24 hrs of infarct
            3. Indicator of acute MI
    c. Myoglobin
        i. Found in cardiac & skeletal muscle
        ii. Increases 1-3 hrs & peaks w/in 12 hrs after onset of symptoms
        iii. Not specific!!
20. Myocardial infarction manifestations
    a. CP not relieved w/ rest or nitro
    b. Palpitations
    c. New onset of murmur→ S3, S4
    d. Jugular venous distension
    e. HTN
    f. Dysrhythmias, ST and T wave changes
    g. SOB, dyspnea, tachypnea; crackles & pulmonary edema may be present
    h. N/V, indigestion
    i. ↓ urinary output
    j. Cool, clammy, diaphoretic, pale skin
    k. Anxiety, restlessness, lightheadedness
    l. Fear w/ feeling of impending doom or denial that anything is wrong
21. Alteplase nursing tasks
    a. Assess for contraindications (bleeding disorders, uncontrolled HTN, active bleeding, PUD, hx of hemorrhagic stroke, recent trauma or sx, pregnancy)
    b. Monitor for evidence of bleeding, thrombocytopenia, and anemia
    c. Monitor VS before, during, and after administration of medication

22. Sedative and paralytic medications
    a. Sedatives: Propofol, diazepam, lorazepam, midazolam
        i. Anti-anxiety, sedation
    b. Neuromuscular blocking agents: pancuronium, atracurium, vecronomium
        i. Paralyze muscles/suppress respiratory effort
    c. Clients receiving mechanical ventilation can require sedation or paralytic agents to prevent competition btw extrinsic and intrinsic breathing and result effects of hyperventilation
23. Atelectasis manifestations
    a. Increasing dyspnea
    b. Diminished breath sounds
    c. Cough and sputum production
    d. If large amt of lung tissue →marked respiratory distress may be observed
    e. Tachycardia
    f. Tachypnea
    g. Pleural pain
    h. Central cyanosis(blueish skin hue = late sign of hypoxemia)
    i. Pts characteristically have difficulty breathing in the supine position and are anxious
24. Flail chest manifestations
    a. Unequal chest expansion (the unaffected side of the chest will expand , while the affected side can appear to diminish in size or remain stationary
    b. Paradoxical chest wall movement(inward movement of segment during inspiration, outward movement of segement during expansion)
    c. Tachycardia
    d. Hypotension
    e. Dyspnea
    f. Cyanosis
    g. Anxiety
    h. Chest pain
25. Chest tube indications
    a. Drain fluid, blood, or air
    b. Facilitate lung-expansion
    c. Restore normal intra-pleural pressure
26. Intubation respiratory monitoring
    a. Check end-tidal CO2 levels
    b. Check for bilateral breath sounds and symmetry of chest expansion
    c. Have resuscitation equipment ready→ manual resuscitation bag with a face mask at the bedside at all times!
    d. Ensure intubation attempt last no longer than 30 seconds and reoxygenate before another attempt
    e. Monitor VS and verify ET tube placement → end tidal carbon dioxide levels and CXR
    f. Auscultate for breath sounds bilaterally after intubation
    g. Observe for symmetric chest movement
    h. Stabilize endotracheal tube with tube holding device or secure with tape
    i. Monitor for hypoxemia, dysrhythmias, and aspiration
27. Valvular heart disease nursing care
    a. Monitor wt and note recent changes
    b. Assess heart rhythm (irregular or bradycardic, assess for murmur)
    c. Administer O2 and meds
    d. Assess hemodynamic monitoring→ maintain fluid & Na+ restrictions
    e. Assist the client to conserve energy → space out activities
28. Pacemaker education
    a. Need to restore ventricular function → apply an artificial stimulus to the heart muscle
    b. Pacemaker induced depolarization is called capture
    c. Pacemakers can be temporary or permanent
    d. Pacemakers that stimulate only the ventricles – ventricular pacemakers
        i. Pacemaker that stimulates atrial conduction system -atrial pacemaker

ii. Some stim both atria and ventricles in sequence → AV synchronous pacemakers
e. Fixed rate (asynchronous): fires @ a constant rate w/o regard for the heart's electrical activity
f. Demand mode (synchronous): detects the heart's electrical impulses & fires at a preset rate only if the heart's intrinsic rate is below a certain level
g. Tachydysrhythmias: can overpace a tachydysrhythmia and/or deliver an electrical shock
i. Cardioverter defibrillator
h. Pacemaker battery lasts 10 yrs
i. Carry a device identification card at all times
j. Prevent dislodgement→ do not raise arm above the shoulder for 1-2 wks
k. Take pulse daily at the same time and notify provider if HR is less than pacemaker rate
l. Report dizziness, fatigue, fainting, weakness, chest pain, hiccupping, palpitations, difficulty breathing, or wt gain
m. Follow activity restricts including no contact sports or heavy lifting for 2 months
n. ICD shock can feel like a blow to the chest
o. Resume sexual activity as desired, avoid positions that put stress on the incision site
p. Never place items that generate a magnetic field directly over the pacemaker
i. Garage door openers
ii. Burglar alarms
iii. Strong magnets
iv. Generators and other power transmitters
v. Large stereo speakers
q. Inform providers and dentists abt pacemaker
i. No MRI
r. Inform airport security
i. Do not place wand directly over the pacemaker ID

29. Modifiable and nonmodifiable risk factors for CAD
a. Modifiable risk factors
i. lipids→ high cholesterol
ii. HTN
iii. DM
iv. Tobacco use
v. Physical activity
vi. Obesity
b. Non-modifiable
i. Increasing age
ii. Gender (men)
iii. Ethnicity (African Americans)
iv. Genetics → fam hx of heart disease

30. Pericarditis treatment
a. NSAIDs → pain relief, reabsorb fluids in pts w/ rheumatic pericarditis
b. Colchicine→ severe pericarditis & doesn't respond w/ NSAIDs
i. can be used in the acute stage in place of NSAIDs
c. Corticosteroids → severe and not responding to NSAIDs
i. If contraindication to NSAIDs or for specific diseases (pregnancy)
d. NO indomethacin!!!! → decreases coronary blood flow

31. Hypertensive crisis treatment
a. Hypertensive emergency
i. Nitroprusside
ii. Nicardipine
1. Often used w/ labetalol for quick bp ↓
iii. Clevidipine
iv. Enalaprilat
v. Nitroglycerine
vi. Evaluate fluid volume status→ give NS to support BP if indicated
b. Hypertensive urgency

i. Oral dose of fast-acting agents
    1. Beta adrenergic blockers (labetalol)
    2. ACE Inhibitors (captopril)
    3. Alpha2 agonists (clonidine)
    4. Goal: normalize BP w/in 24-48 hrs of tx

32. AAA manifestations
    a. Constant gnawing feeling in abdomen
    b. Flank or back pain
    c. Pulsating abdominal mass
    d. Bruit over the area of the aneurysm
    e. Elevated BP
33. Bronchoscopy (diagnostic/nursing care)
    a. Pre-procedure
        i. Informed consent
        ii. Remove dentures
        iii. NPO for 4-8 hrs, assess gag reflex
    b. Intra-procedure
        i. Monitor VS, respiratory pattern, and oxygenation
    c. Post-procedure
        i. Continue to monitor respirations, BP, pulse ox, HR and LOC
        ii. Assess gag reflex
        iii. Client not discharged until adequate cough reflex and respiratory effort are present
    d. Expected findings
        i. Sore throat, small amts of blood-tinged sputum (due to irritation), hoarse voice
34. Cardiac Catheterization nursing care
    a. Pre-procedure
        i. NPO for 8 hrs → due to risk for aspiration
        ii. VS
        iii. Heart and lung sounds
        iv. Peripheral pulses
        v. Informed consent signed
        vi. Family and pt understand the procedure
        vii. Allergy to iodine/shellfish → contrast allergy
        viii. Assess renal function → for contrast
        ix. Admin pre-meds: methylprednisolone, diphenhydramine
        x. Metformin→ withhold for 48 hrs prior
    b. Intra-procedure
        i. Admin sedatives and analgesia
        ii. Continually monitor VS, heart rhythm, and CP
        iii. Be prepared to intervene for dysrhythmias
        iv. Have resuscitation equipment and emergency meds readily available
    c. Post-procedure
        i. Assess vitals Q15 x4, Q30 x2, Q60(hourly) x4 and then every 4
        ii. Assess affected extremity at same intervals
            1. Bleeding and hematoma at insertion site
            2. Thrombosis → pedal pulse, extremity color, and temperature
        iii. Maintain bedrest in supine position w/ extremity straight for prescribed time
        iv. Continuous cardiac monitoring
        v. Administer antiplatelet or thrombolytic agents as prescribed
            1. Aspirin, clopidogrel, heparin. Enoxaparin
        vi. Administer anxiolytics and analgesics as needed
        vii. Monitor output and admin IV fluids
        viii. Assist with sheath removal from vessel