N441 Exam 1 Concept Reviews

Week 1 Content:

1. Blood administration (transfusion reactions, patient verification, consent)

- 2 nurses verify correct patient and blood products
- Consent must be obtained prior to administration
- In general, professional guidelines have recommended that transfusion is not indicated for hemoglobin >10 g/dL, but the lower threshold varies from 6-8 g/dL.
- Before donation
    - Check vital signs (esp temp) prior to
    - Type and Cross will be completed
    - Usually a reaction will happen in the first 15 minutes
    - 18 or 20g needle – don't lyse blood
    - Ask patient if they have had a previous reaction to blood products
    - 2 RN's MUST verify correct pt and product
- Transfusion reaction
    - Acute Hemolytic-Incompatibility issue
    - Febrile-Anti WBC antibodies (use filter) Tylenol
    - Allergic-sensitivity reaction to something in the blood product (probably a preservative) Benadryl
    - Bacterial-contaminated blood Get some blood cultures
    - Circulatory Overload-too fast, can't handle the volume

1. **Hemolytic rxn:** immediately or can manifest during subsequent transfusions

    1. chills, fever, low back pain, tachycardia, tachypnea, hypotension, flushing, chest-tightening or pain, nausea, anxiety, hemoglobinuria, an impending sense of doom
    2. STOP the transfusion, remove the blood tubing from IV access, infuse 0.9% NaCl using new tubing, monitor VS and fluid status, send bad & tubing to the lab for testing
2. **Febrile rxn: w/in 2hr of transfusion**
    1. chills, 1 degree F increase from the pretransfusion temps, flushing, hypotension, tachycardia
    2. STOP the transfusion, administer antipyretics, start 0.9% NaCl infusion w/ new tubing
3. **Allergic rxn: during or up to 24hr after transfusion**
    1. findings are mild: itching, urticaria (hives), flushing; possible anaphylactic rxn: bronchospasm, laryngeal edema, hypotension, shock

2. STOP transfusion, 0.9% infusion, antihistamine (such as Benadryl) for a MILD rxn, if provider prescribes to restart the transfusion, do so slowly
3. STOP transfusion, EPI, steroids, vasopressors, oxygen, or CPR for anaphylactic rxn, 0.9% infusion

4. **Bacterial rxn: during or up to several hours after transfusion**

---1. wheezing, dyspnea, chest-tightening, cyanosis, hypotension, shock

---2. STOP, antibiotics, 0.9% w/ new tubing, blood culture specimen to the lab

5. Circulatory overload: can occur at any time during the transfusion

---1. crackles, dyspnea, cough, anxiety, jugular vein distension, tachycardia, pulmonary edema hypertension

---2. Slow or stop transfusion depending on severity, position client upright w/ feet lower than heart, admin oxygen, diuretics, and morphine as prescribed

6. P/t verification: 2 RNs must identify the correct blood product and the patient's ID band to make sure the numbers match

2. Chest tubes (expected findings in the chambers)

- Gentle constant bubbling in the suction control chamber 2. Rise & fall in the level of water in the water seal chamber w/ inspiration and expiration 3. BIG NO's: continuous bubbling in the water seal chamber (air leak), exposed sutures w/o dressing, drainage system at chest level

- 1st chamber drainage collection: receives fluid from the pleural or mediastinal space
- 2nd chamber water seal: incoming air enters the collection chamber and bubbles up through the water. Bubbling will occur initially when pneumothorax is present (not constand), bubbling will cease when the lung expands, continuous bubbling indicates a leak.
- 3rd chamber suction control: can be wet or dry. Bubbling indicates suction.

3. ET Tubes (Suctioning, complication prevention)

- Suctioning-before suctioning-hyperoxygenation
- Suction the tube to clear secretions from the airway.
- Fluid retention: prevention-monitor I/O, weight, breath sounds, and ET suctions.
- Oxygen toxicity: prevention-monitor for fatigue, restlessness, severe dyspnea, tachycardia, tachypnea, crackles, and cyanosis
- Hemodynamic compromise: prevention-monitor for tachycardia, hypotension, urine output <30mL/hr, cool/clammy extremities, decreased peripheral pulses and decreased LOC.
- Aspiration: prevention: keep HOB elevated, check residuals every 4 hours if the client is receiving feedings.
- GI ulcerations: prevention- monitor GI drainage and stools for blood, administer ulcer prevention medications.

- Oral care: provide frequent oral care (2 hours) and reposition tubing frequently to prevent skin breakdown.
- Complications-
- trauma
- Altered position of endotracheal tube: check positioning q 1-2h and as needed assess lung sounds
- Aspiration pneumonia check the cuff for leaks, asses suctioning contents for gastric secretions, verify NG tube placement
- Infection :proper hand hygiene and suctioning technique; assess color, amount, and consistency of secretions
- Blocked endotracheal tube(high pressure alarm on vent) suction secretions or insert an oral airway

4. Mechanical ventilation (high pressure and low alarm causes, preventing complications ie aspiration, skin breakdown; safety with suctioning)

- High-pressure alarm causes: PT bearing down or coughing, the vent is on bronchial or tracheal wall, kinked tubing, mucus buildup, PT breathing too hard, PT bucking vent
- Low-pressure alarm causes: vent is disconnected from ETT, self-extubation, loose tubing connection (If PT low-pressure alarm goes off, their oxygen is decreasing, and the vent is not out of their mouth = bag them)
- Prevent aspiration: Elevate PTs head of the bed
- Prevent skin breakdown: reposition ETT from side to side of the mouth, no restraints
- Safety with suctioning: hyper oxygenate PT before suctioning

5. Cardiac cycle (Identify components)

Know EKG's

(one cycle is from p-wave to p-wave)

6. Central line placement complications (hint: I told you during skills lab day, do you remember?)

- Can puncture chest cavity and cause pneumothorax.
- Dysrhythmias, infection, sepsis, air embolism, and catheter lumen occlusion

Week 2 Content:

1. ARF (manifestations)

-Dyspnea
-Orthopnea
- Cyanosis
-. Pallor
-Hypoxemia
-Tachycardia
-Confusion
-Irritability or agitation
- Restlessness
-Hypercarbia (high levels of carbon dioxide in the blood)
-Hypotension
-Decreased LOC
-Headache

2. ARDS (positioning)

- Prone

3. Pneumonia (manifestations)

- Anxiety
- Fatigue
- Headache
- Weakness
- Chills
- Tachypnea
- Crackles
- Diaphoretic
- low-grade fever
- confusion from hypoxia
- pleuritic chest pain; sharp
- mucoid or mucopurulent sputum (yellow-tinged)

In severe case; tachypnea, SOB, labor breathing, central cyanosis (lips, nail beds), orthopnea, poor appetite, diaphoresis, weakness/fatigue

4. Pneumothorax (lung sounds)

- Absent and reduced breath sounds on the affected side

5. Pulmonary Embolism (assessment findings, relationship of DVT, prevention [don't forget fluid intake])

- Findings: anxiety, feeling of impending doom, pressure, dyspnea, hypotension, tachycardia, tachypnea, cyanosis, petechiae over the chest

- An embolus originating from venous thromboembolism (DVT) is the common cause of PE
- Prevention: smoking cessation, encourage appropriate weight for height and body frame, healthy diet and physical activity, leg exercises, wear compression stockings and avoid sitting for long periods of time

6. Bronchoscopy or TEE (safety to prevent aspiration)

-Post op: Check gag reflex to prevent aspiration

Week 3 Content:

1. Coronary Artery Disease (modifiable and non-modifiable risk factors and prevention) *can add more*

-modifiable: diet, smoking, exercise, obesity, high fat diet, sedentary lifestyle, bad dietary habits

-non modifiable: age, family history, gender, race, C-reactive protein (CRP)

-Prevention: exercise, eat healthy, don't smoke

2. Aortic Dissection (Symptoms, hint: look on the concept map)

- Frequently described as a "tearing " type of pain in abdominal or back

3. Cardiac Enzymes (CK-MB, Troponins)

Troponin I and T, CK-MB, myoglobin

4. Pericarditis (positioning and complications)

- Untreated strep can lead to pericarditis will need culture
- Will have steroids and NSAIDS for treatments
- Sit upright and leaning forward avoid supine
- complications-Infection -dizziness, fainting, anxiety,breathing problems and chest pain, weak pulse,swelling in the abdomen
- Pericarditis progresses to heart failure -peripheral edema-increase systemic venous pressure-fluid collection in the pericardial space -can cause cardiac tamponade

5. Valve Replacement (anbx prophylaxis)

- Advise PT to have antibiotics prior to dental procedure

6. Thrombolytics (time limit, risks)

- Can be given from 4-6 hours from ONSET of chest pain. Anything after 4-6 hours you can not receive it.
- You can not do any procedures after being given thrombolytics
- You have the biggest risk of bleeding, they need to be on bed rest, and if you give them anything IM or injection you need to hold pressure to the site for a long period of time.

7. Cardiac catheterization (complications, post procedure care, where to check pulses)

- Complication: bleeding at the site
- Post procedure care: bed rest for 6 hours, if femoral keep leg straightened, monitor bleeding at site
- Check pulses on the distal from the affected site (same side)

8. MI (diagnostic labs and STEMI EKG's, clinical manifestations, pharmacologic tx, nursing interventions)

- Troponin should be <0.03
- Creatine Kinase (CK-MB): men 2-6, women 2-5 mcg/L, CPK, Myoglobin rises w/in 2 hr, drastic drop after 7
- Tightness of chest/chest pain, diaphoresis,tachycardia, SOB,nausea, vomiting
- ST elevation

9. ABC's for prioritization (airway, lungs, breathing, oxygen are always FIRST)

10. Betablockers (purpose)

- Are for patients who have unstable angina or MI
- -They decrease cardiac output and decrease vasoconstriction
- Lowers BP and HR

11. Nitroglycerine patches (on and off periods and why)

- 12 hours on and 12 hours off
- Make sure the skin is clean and dry without hair
- Rotate patch sites

12. Bedrest (why for resp and cardiac problems)

Overall poor perfusion - up and moving reduces perfusion even more due to compromised respiratory and cardiac issues.

13. Hypertensive (emergency vs urgency, review how to bring the BP down)

- Give IV drip nitro/nitride (vasodilate) bring BP down slow b/c tissue is used to increase pressure. This can lead to pressure in the brain. End organ damage to the heart, kidneys, lungs.
- Ex: 220/110, not short of breath, no headache, creat normal, not confused= urgency. Crisis is with organ damage.