Nursing Process

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Client Profile

The name of the client that I took care of is RB. He is a 52 year old Caucasian male who was admitted to the hospital on 2/5/12. He had an admitting diagnosis of bilateral leg, and Cirrhosis of the liver. In his additional history it showed that he has insulin dependent diabetes, hepatitis c, hypertension, confusion, and chronic obstructive pulmonary disease (COPD). The past surgical history showed that RB had nasal surgery, and an umbilical hernia repair done. He was an interesting patient for me because it was my first time taking care of someone with liver disease. It was fascinating to see how RB's diagnoses comingled, and affected his different body systems.

Admitting Diagnosis

According to Black & Hawks (2009) cirrhosis of the liver "is a chronic, progressive disease characterized by widespread fibrosis (scarring) and nodule formation" (p. 1147). RB was an alcoholic for many years, but has been sober now for 13 years. Although the exact cause of cirrhosis is not known there is a strong "relationship between cirrhosis and excessive alcohol ingestion" (Black, & Hawks, 2009, p. 1147). Some of the more common clinical manifestations of advanced cirrhosis include: "ascites caused by malnutrition, portal hypertension, hypoalbunminemia, hypoprothrombinemia, thrombocytopenia, and luekopenia" (Black, & Hawks, 2009, p.1149). It is absolutely astonishing to see just how many complications are involved with cirrhosis of the liver. A few of the complications involved with cirrhosis include: edema and ascites, bruising and bleeding, portal hypertension, splenomegaly, jaundice, insulin resistance, and lung and renal failure ("National digestive diseases," 12). Along with cirrhosis of the liver RB was also admitted with bilateral leg pain. Just by looking at his legs you could tell

that they were edematous. When I assessed the legs he had bilateral pitting edema, and the pain in his left leg was much more severe than in the right leg.

Past Medical History

Another factor that probably played a role in the cirrhosis of RB's liver is his past medical history of Hepatitis C. This "is a liver disease caused by the hepatitis c virus (HCV), [and it] usually spreads through contact with infected blood, [but can] spread through sex with an infected person and from mother to baby during child birth" ("Medline plus," 2012). It is also very common for intravenous drug users to contract Hepatitis C. This disease will lead to liver inflammation, and "jaundice [yellowing of the skin] usually develops" (Black, & Hawks, 2009, p. 1137). Some of the other more common clinical manifestations include: "lethargy, irritability, myalgia, arthralgia, anorexia, nausea, vomiting, abdominal pain, diarrhea, constipation, and fever" (Black, & Hawks, 2009, p. 1140). RB has insulin dependent diabetes, also known as type 1 diabetes. "With type 1 diabetes your pancreas does not make any insulin, [and without insulin] too much glucose stays in the blood" ("Medline plus," 2012). Some of the symptoms of type 1 diabetes may include: "being very thirsty, urinating often, feeling very hungry or tired, losing weight without trying, having sores that heal slowly, having dry, itchy skin, losing the feeling in your feet or having tingling in your feet, and having blurry eyesight" ("Medline plus," 2012). Unfortunately if you have type 1diabetes you will have to take insulin for the rest of your life.

RB also has hypertension. A normal or healthy blood pressure is 120/80, and a blood pressure of 140/90 and above is considered high (hypertensive). The scary thing about hypertension is that many times the person experiences no symptoms. This disease can cause serious problems such as, "stroke, heart failure, heart attack, and kidney failure" ("Medline

plus," 2012). One thing that definitely doesn't help with RB's hypertension is the fact that he has been smoker for 30 years and smokes half a pack of cigarettes a day. I'm sure his smoking also doesn't help his COPD, and probably was a key contributing factor. COPD is short for chronic obstructive pulmonary disease. It is considered an obstructive disorder, which means that it is hard for the person to breathe out. The inability to breathe out affectively leads to an increase in carbon dioxide in the lungs and eventual respiratory acidosis. Along with the decreased ability to exhale the patient will also have an increase in respiratory mucous secretion which makes gas exchange very difficult. "In COPD, your airways and air sacs lose their shape and become floppy, like a stretched-out rubber band" ("Medline plus," 2012). Sadly this disease cannot be cured, but it can be effectively managed through the use of medications. The last thing that was in RB's past medical history was confusion. "Confusion is the inability to think with your usual speed or clarity, including feeling disoriented and having difficulty paying attention, remembering, and making decisions" ("medline plus," 2012). RB was clearly confused during my shift, which I feel could be attributed to the medications that he was on and his admitting diagnoses.

Surgical History

RB had a past nasal surgery, and an umbilical hernia repair. "An umbilical hernia is a sac (pouch) formed from the inner lining of your belly (abdominal cavity) that pushes through a hole in the abdominal wall at the belly button" ("Medline plus," 2012). There are many reasons why the patient may have had umbilical hernia repair. I personally believe that the abdominal pressure caused by his ascites could have been the leading factor. I'm not sure why he had the

nasal surgery, but it looked as if his nose had been broken at some point in time because it was very crooked.

Assessment

- Name: RB, 52 year old Caucasian male, Ht. 5'9, Wgt. 198lbs 3.12oz.
- Admitting Diagnosis: Bilateral leg pain, Cirrhosis liver
- Vitals: HR- 76, BP-145/92, Resp-20, Pox-92% RA, TEMP- 99.0^{o} F, Pain 8/10, A&O x 2, PERRLA
- Lung Sounds: Wheezing throughout all lobes. Patient complained of SOB and his breathing seemed shallow and labored at times.
- Bowel Sounds: Hypoactive x 4, stomach was distended (ascites) and mildly tender upon palpation. Patient had not had a bowel movement for 4 days.
- Pulses: Radial +2 bilaterally, Pedal +1 bilaterally.
- Skin: Warm, dry, and yellow. Patient had generalized edema, +1 bilaterally in the upper extremities, and +3 pitting edema bilaterally in the lower extremities. Capillary refill > 3 seconds. Three wounds: left outer forearm, coccyx, and right lower leg.
- Patient had an amber/reddish color to his urine.
- Seemed to be very fatigued and remained lethargic throughout the shift.
- At times the patient was severely confused. He even thought that the TV was a chicken at one point.
- Complained of bilateral pain in the lower extremities. The pain in his left leg was particularly severe and he described it as a throbbing radiating pain.

- Extremities weak bilaterally upper and lower. Patient told me that he had not walked for 16 days.

Nursing Diagnosis

Impaired Skin Integrity (Doenges, Moorhouse, & Murr, 2010, p.402, 452) r/t altered circulation, presence of edema, and ascites. AEB, disruption of skin surface, and altered healing.

Interventions

- "Inspect skin surfaces and pressure points routinely. Gently massage bony prominences or areas of continued stress" (Doenges, Moorhouse, & Murr, 2010, p.452). RB's skin is very edematous, "edematous tissues are more prone to breakdown and to formation of edematous ulcers" (Doenges, Moorhouse, & Murr, 2010, p.452). This intervention will help us prevent further skin breakdown by recognizing early signs of skin breakdown.
- "Encourage and assist with repositioning on a regular schedule, while in bed or chair, and active or passive range-of-motion exercises, as appropriate" " (Doenges, Moorhouse, & Murr, 2010, p.452).This will help keep pressure off of RB's edematous extremities. "Exercises enhance circulation and improve or maintain joint mobility" " (Doenges, Moorhouse, & Murr, 2010, p.452).
- "Provide meticulous skin care… [paying] particular attention to skin folds…" " (Doenges, Moorhouse, & Murr, 2010, p.402). Although RB was not an extremely overweight patient he was very edematous and had a distended stomach. It is important to keep areas of the skin dry and clean because "moisture or excoriation enhances growth of bacteria can lead to… infection" " (Doenges, Moorhouse, & Murr, 2010, p.402).

- "Recommend elevating lower extremities" " (Doenges, Moorhouse, & Murr, 2010, p.452). RB had generalized edema, but the edema in his legs was by far the worst. We did place pillows under his legs in order to elevate them off the bed. It is important to elevate the extremities because elevating the lower extremities "enhances venous return and reduces edema formation in extremities" (Doenges, Moorhouse, & Murr, 2010, p.452).
    - **Short Term Goal**
        - The client will show no further signs of skin breakdown during my clinical shift.
    - **Long Term Goal**
        - The client will show improved skin integrity by the end of his hospital stay.
            - **Evaluation**
                - My short term goal for RB was met. He showed no further signs of skin breakdown during my shift. The long term goal is yet to be determined, and will be based upon further care that the client receives while hospitalized. If the medical team follows through with the interventions presented RB should make a full recovery.

Risk for Infection (Doenges, Moorhouse, & Murr, 2010, p.413) r/t broken skin, high glucose levels, and effects of chronic and debilitating disease.

Interventions

- "Observe for signs of infection and inflammation-fever, flushed appearance, wound drainage, purulent sputum, and cloudy urine" (Doenges, Moorhouse, & Murr, 2010, p.413). RB had several open wounds which is a cause for concern when trying to prevent an infection. Close observation for signs and symptoms of infection will help us detect and treat any problems that may arise.
- "Promote good hand washing by staff and client" (Doenges, Moorhouse, & Murr, 2010, p.413). It's true something as simple as keeping your hands clean is one of the most effective measures that can be taken to prevent infection. Keeping things clean and sterile is important because it "reduces the risk for cross-contamination" (Doenges, Moorhouse, & Murr, 2010, p.413).
- "Provide conscientious skin care, gently massage bony areas, keep the skin dry, and keep linens dry and wrinkle-free" (Doenges, Moorhouse, & Murr, 2010, p.413). Although RB already has several areas of skin breakdown it is important for us to prevent any further skin breakdown because the skin is one of our primary defense mechanisms against infection. RB was also very edematous and he had poor capillary refill which tell me that his peripheral circulation was impaired. Poor peripheral circulation "[places the] client at increased risk for skin irritation… breakdown and infection" (Doenges, Moorhouse, & Murr, 2010, p.413).
- "Administer antibiotics, as appropriate" (Doenges, Moorhouse, & Murr, 2010, p.414). RB did not have any present infections, but he did several tests done to check for the presence of osteomyelitis. If he does in-fact have an infection "early treatment may help prevent sepsis" (Doenges, Moorhouse, & Murr, 2010, p.414).
    - **Short Term Goal**

- The client and staff will demonstrate measures to decrease risk for infection during my clinical shift.

- **Long Term Goal**
  - The client will remain free from infection during his hospital stay.

- **Evaluation**
  - My short term goal for RB was met. The staff, client, and I all took measures to prevent infection throughout my clinical shift. The long term goal is yet to be determined, and will be based upon further care that the client receives while hospitalized. If the medical team follows through with the interventions presented RB should remain infection free during his hospital stay.

Labs	Normal Values	RB's Values	Assessment
Na	136-145	132	**Low,** could be a result of renal failure due to cirrhosis of the liver, or excess fluid in the body. RB clearly had excess fluid based on the pitting edema in his lower extremities. His renal function was also clearly decreased based on his high BUN and creatine levels.
K	3.5-5	5.6	**High,** This could be due to RB's decreased urinary output and constipation.

$C0_2$	35-45	14	**Low,** RB has a history of COPD and he also complained of SOB. These respiratory issues could lead to a decreased $C0_2$.
Glucose	70-100	235	**High**, the client has insulin dependent diabetes mellitus.
BUN	7-26	102	**High**, "elevation indicates breakdown of blood proteins and possible kidney dysfunction because of diuretic use in treatment of ascites" (Doenges, Moorhouse, & Murr, 2010, p.448).
Creatine	0.64-1.27	3.96	**High,** RB's urine was an amber/reddish color and his nurse told me that his urinary output had been low. Due to his high BUN and Creatine I believe that the patient is experiencing renal failure as a result of cirrhosis of the liver.
WBC	4.5-11	3.7	**Low,** RB has cirrhosis of the liver which can cause leucopenia. Low WBC puts RB at increased risk for infection.
RBC	4.5-6	2.10	**Low,** RB was on Protonix which can be used to treat duodenal ulcers. I believe that RB might have had an ulcer that was bleeding. Cirrhosis of the liver can cause splenomegaly which

			will cause a decrease in blood platelets ("National digestive diseases," 12). A decrease in platelets will intensify the affects of a bleed if present.
Hgb	13.5-17.5	6.6	**Low,** I believe that RB either has a bleed that is causing his decreased Hgb, or it is a product of splenomegaly due to cirrhosis of the liver.
Hct	41-53	20.1	**Low,** it is clear to me that based on RB's CBC he is suffering from anemia either due to some type of bleed or RBC destruction.
Plt	150-450	38	**Low,** RB's low platelet count tells me that his blood is not clotting properly which could lead to excessive bleeding. Excessive bleeding could lead to anemia and lowered Hgb, Hct, and RBC.

Normal lab values are based on information obtained at Mercy Medical Center!!!

Diagnostic Test	Description	Result
Venous Doppler (US)	"Ultrasound uses high-frequency sound waves to look at organs and structures inside the body. Health care professionals use them to view the heart, blood vessels, kidneys, liver and other organs" ("Medline plus," 2012).	RB's results came back as negative for DVT's in the upper and lower extremities. They also did an ultrasound on RB's stomach to look for progression of liver cirrhosis.
XRAY	"X-ray technology uses electromagnetic radiation to make images. The image is	RB was having problems with pain in his lower extremities especially. They performed an

	recorded on a film, called a radiograph. The parts of your body appear light or dark due to the different rates that your tissues absorb the X-rays" ("Medline pluse," 2012).	xray of the hips to check for osteomyelitis which is an infection of the bones. They didn't have results for the test available.

Medications

Drug Name: Docusate (laxatives)

Drug Action/ Purpose: Promotes incorporation of water into stool, resulting in softer fecal mass. May also promote electrolyte and water secretion into the colon. Softening and passage of stool.

Normal Dose Range: PO (Adults and Children >12 yr): 50–400 mg in 1–4 divided doses.

Major Side Effects: Throat irritation, mild cramps, diarrhea, rashes

Nursing Considerations: PO: Administer with a full glass of water or juice. May be administered on an empty stomach for more rapid results

» Oral solution may be diluted in milk, infant formula, or fruit juice to decrease bitter taste

» Do not administer within 2 hr of other laxatives, especially mineral oil. May cause increased absorption

Drug Name: Inderal (antihypertensives/antiarrhythmics)

Drug Action/Purpose: Blocks stimulation of $beta_1$(myocardial) and $beta_2$ (pulmonary, vascular, and uterine)-adrenergic receptor sites. Decreased heart rate and blood pressure. Suppression of arrhythmias. Prevention of MI

Normal Dose Range: PO (Adults): *Antianginal*—80–320 mg/day in 2–4 divided doses or once daily as extended/sustained-release capsules. *Antihypertensive*—40 mg twice daily initially; may be ↑ as needed (usual range 120–240 mg/day; doses up to 1 g/day have been used); *or* 80 mg once daily as extended/sustained-release capsules, ↑ as needed up to 120 mg. *InnoPran XL* dosing form is designed to be given once daily at bedtime. *Antiarrhythmic*—10–30 mg 3–4 times daily. *Prevention of MI*—180–240 mg/day in divided doses.

Major Side Effects: Fatigue, weakness, arryhythmias, bradycardia, CHF, pulmonary edema

Nursing Considerations: PO: Take apical pulse prior to administering. If <50 bpm or if arrhythmia occurs, withhold medication and notify physician or other health care professional. Administer with meals or directly after eating to enhance absorption.

Drug Name: Cubicin (anti-infectives)

Drug Action/Purpose: Causes rapid depolarization of membrane potential following binding to bacterial membrane; this results in inhibition of protein, DNA, and RNA synthesis. Death of bacteria with resolution of infection.

Normal Dose Range: IV (Adults): 4 mg/kg every 24 hr.

Major Side Effects: Eosinophilic pneumonia, Pseudomembranous colitis

Nursing Considerations: Intermittent Infusion: Reconstitute 500-mg vial with 10 mL of 0.9% NaCl inserted toward wall of vial. Rotate vial gently to wet powder. Allow to stand for 10 min undisturbed. Swirl vial gently to completely reconstitute solution. Reconstituted vials are stable for 12 hr at room temperature or 48 hr if refrigerated.

Diluent: Dilute further in 50 mL of 0.9% NaCl. Solution is stable for 12 hr at room

temperature or 48 hr if refrigerated. Do not administer solutions that are cloudy or contain a precipitate.

Drug Name: Lactulose (laxatives)

Drug Action/Purpose: Increases water content and softens the stool. Relief of constipation.

Normal Dose Range: PO (Adults): 15–30 mL/day up to 60 mL/day as liquid or 10–20 g as powder for oral solution (up to 40 g /day has been used).

Major Side Effects: Belching, cramps, distension, flatulence

Nursing Considerations: PO: Mix with fruit juice, water, milk, or carbonated citrus beverage to improve flavor. Administer with a full glass (240 mL) of water or juice. May be administered on an empty stomach for more rapid results

» Dissolve single dose packets (Kristalose) in 4 oz of water. Solution should be colorless to slightly pale yellow

Drug Name: Insulin Human Regular (antidiabetics)

Drug Action/ Purpose: Control of hyperglycemia in diabetic patients

Normal Dose Range: SC (Adults and Children): 0.5–1 unit/kg/day in divided doses.

Adolescents during rapid growth—0.8–1.2 unit/kg/day in divided doses.

Major Side Effects: Hypoglycemia, allergic reactions including anaphylaxis

Nursing Considerations: Use *only* insulin syringes to draw up dose. The unit markings on the insulin syringe must match the insulin's units/mL. Special syringes for doses < 50 units are available. Prior to withdrawing dose, rotate vial between palms to ensure uniform solution; do not shake

» When mixing insulins, draw regular insulin into syringe first to avoid contamination of regular insulin vial

» Insulin should be stored in a cool place but does not need to be refrigerated

• **SC**: Administer regular insulin within 15-30 min before a meal

Drug Name: Pantoprazol (antiulcer agents)

Drug Action/Purpose: Binds to an enzyme in the presence of acidic gastric pH, preventing the final transport of hydrogen ions into the gastric lumen. Diminished accumulation of acid in the gastric lumen, with lessened acid reflux

Normal Dose Range: PO (Adults): 40 mg once daily.

Major Side Effects: Headache, abdominal pain, diarrhea, flatulence

Nursing Considerations: PO: May be administered with or without food. Do not break, crush, or chew tablets

» Antacids may be used concurrently

Drug Name: Metroprolol (antianginals/antihypertensives)

Drug Action/Purpose: Blocks stimulation of $beta_1$(myocardial)-adrenergic receptors. Does not usually affect $beta_2$(pulmonary, vascular, uterine)-adrenergic receptor sites. Decreased blood pressure and heart rate. Decreased rate of cardiovascular mortality and hospitalization in patients with heart failure

Normal Dose Range: IV (Adults): *MI*—5 mg q 2 min for 3 doses, followed by oral dosing.

Major Side Effects: Fatigue, weakness, bradycardia, CHF, pulmonary edema

Nursing Considerations: High Alert: IV vasoactive medications are inherently dangerous. Before administering intravenously, have second practitioner independently check original order and dose calculations. **High Alert**: Do not confuse metoprolol with misoprostol. Do not confuse Toprol-XL (metoprolol) with Topamax (topiramate) or Tegretol (carbamazepine).

Drug Name: Lorazepam (antianxiety agents)

Drug Action/Purpose: Depresses the CNS, probably by potentiating GABA, an inhibitory neurotransmitter. Sedation, decreased anxiety, decreased seizures.

Normal Dose Range: PO (Adults): *Anxiety*—1–3 mg 2–3 times daily (up to 10 mg/day). *Insomnia*—2–4 mg at bedtime.

Major Side Effects: Dizziness, drowsiness, lethargy, apnea, cardiac arrest,

Nursing Considerations: Do not confuse Ativan (lorazepam) with Atarax (hydroxyzine). Following parenteral administration, keep patient supine for at least 8 hr and observe closely. **PO**: Tablet may also be given sublingually (unlabeled) for more rapid onset. Take concentrated liquid solution with water, soda, pudding, or applesauce.

Drug Name: Morphine Sulfate (opioid analgesics)

Drug Action/ Purpose: Binds to opiate receptors in the CNS. Alters the perception of and response to painful stimuli while producing generalized CNS depression. Decrease in severity of pain. Addition of naltrexone in *Embeda* product is designed to prevent abuse or misuse by altering the formulation. Naltrexone has no effect unless the capsule is crushed or chewed.

Normal Dose Range: IM, **IV**, **SC (Adults ≥50 kg):** *Usual starting dose for moderate to severe pain in opioid-naive patients*—4–10 mg q 3–4 hr. *MI*—8–15 mg, for very severe pain additional smaller doses may be given every 3–4 hr.

Major Side Effects: Hypotension, constipation, confusion, sedation, respiratory depression

Nursing consideration: IV Adminstration: IV: Solution is colorless; do not administer discolored solution. **Direct IV: Diluent:** Dilute with at least 5 mL of sterile water or 0.9% NaCl for injection **Concentration:** 0.5–5 mg/mL. **Rate: High Alert**: Administer 2.5–15 mg over 5 min. Rapid administration may lead to increased respiratory depression, hypotension, and circulatory collapse. **Continuous Infusion: Diluent:** May be added to D5W, D10W, 0.9% NaCl, 0.45% NaCl, Ringer's or LR, dextrose/saline solution, or dextrose/Ringer's or LR. **Concentration:** 0.1–1 mg/mL or greater for continuous infusion. **Rate:** Administer via infusion pump to control the rate. Dose should be titrated to ensure adequate pain relief without excessive sedation, respiratory depression, or hypotension. May be administered via patient-controlled analgesia (PCA) pump.

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