## Medications

Apixaban 2.5mg/1tabs, PO, BID, for 10 days. Pharmacological class; Factor Xa inhibitor, therapeutic class; anticoagulant. Taken to reduce the risk of systemic embolism and deep vein thrombosis (Jones, 2020).

Cholecalciferol vitamin D3 50mcg/1tab, PO, once daily, Pharmacological class; vitamin D analog, Therapeutic class; anti-hypocalcemia, taken for vitamin D deficiency (Jones, 2020).

Cephalexin 500mg/1cap, PO, Q8H, Pharmacologic class; first-generation cephalosporin, Therapeutic class; antibiotic, taken to prevent bone infection (Jones, 2020).

Hydrocodone – acetaminophen 75mg – 325mg, PO, Q6H, Pharmacological class; analgesic, Therapeutic class antitussives, taken for pain (Jones, 2020).

## Lab Values/Diagnostics

CO2 21-31mmol/l, 34mmol/l. High CO2 is caused by hydrogen ion loss (Pagana, 2018). Related to frequent urination.

Creatinine 0.70-1.30mg/dl, 0.53mg/dl. Low creatinine levels in this patient are caused by muscle loss (Pagana, 2018). Related to open fracture of tibia and fibula.

Calcium 8.6-10.3mg/dl, 8.2mg/dl. Vitamin D is needed to absorb calcium (Pagana, 2018). Abnormal value related to a history of low vitamin D levels.

RBC 4.28-5.56k/mcl, 3.29k/mcl. Low RBCs are caused by excessive blood loss (Pagana, 2018). Related to open fracture of the tibia-fibula.

## Demographic Data

**Date of Admission: 10/9/22**
**Admission Diagnosis/Chief Complaint:** The patient complained of a broken leg.
**Age:** 34
**Gender:** Female
**Race/Ethnicity:** Black or African American
**Allergies:** None
**Code Status:** Full code
**Height in cm:** 66 inches
**Weight in kg:** 171
**Psychosocial Developmental Stage:** The patient is in stage 6 intimacy versus isolation stage of psychological development
**Cognitive Developmental Stage:** Formal operational
**Braden Score:** 18
**Morse Fall Score:** 45
**Infection Control Precautions:** Hand hygiene, PPE.

**Admission History:** The patient was headed to the gas station to get some coffee. She states that she lost her balance and her left leg crossed over to her right, and she tripped, fracturing her ankle, tibia, and fibula. she has been in constant pain since the fall. the patient stated that her pain was throbbing and pulsating. The patient stated that she called 911 and was brought to Sarah Bush. The patient stated that she did not have any aggravating factors, but relieving factors were the pain medication she received. On admission, the patient was taken in for surgery.

## Medical History

**Previous Medical History:**
History of a brain tumor, history of stroke, fibula fracture, tibia fracture, and malleolar.
**Prior Hospitalizations:**
leg pain, history of low vitamin D levels, and falls
**Previous Surgical History:** N/A
**Social History:** Tobacco use, 10 or more cigars, 1 to 2 packs a day for 30 years. Smoke cessation in the past 30 days.

## Pathophysiology

**Disease process:** The tibia-fibula fracture occurs due to low-energy injuries, like falls. This fracture can also occur in high-energy injuries, like motor vehicles and gunshot wounds (Capriotti, 2020, p. 949). The surface of the tibia has a thin layer of tissue, making the bone easily palpable below the surface. The thin layer of tissue leads to open fractures susceptible to infection (Capriotti, 2020, p. 949). The lateral malleolus of the ankle region and fibula are covered by thin tissue. This makes the tibia and ankle susceptible to injury.
**S/S of disease**: Pain and or swelling of the lower leg, the inability to stand or walk, limited range of motion, and bone protruding from the skin.
**Method of Diagnosis**: tibia and fibula fractures are diagnosed with X-rays, CT scan, bone scan, and MRI scan.
**Treatment of disease:** Treatments for tibia fibula fracture depend on the extent of the injury and the type of injury. Nonsurgical treatments include casts, functional braces, pain medications, and physical therapy (Capriotti, 2020, p. 949). In severe cases of tibia and fibula fractures where it is an open fracture, and comminuted fracture, internal and external fixations are used. Internal fixation involves using screws, rods, and plates, while external fixation connects screws and pins in the fracture to a metal bar outside the leg (Capriotti, 2020, p. 949). The patient presented with all the signs and symptoms mentioned above. She received opioids for pain and underwent surgery for an internal fixation treatment of the comminuted fracture.

**Lab Values/Diagnostics Continued**

Hgb 13.0-17.0g/dl, 9.6g/dl. Low Hgb is caused by a shortage of iron in the blood (Pagana, 2018). Related to blood loss due to an open fracture of the tibia-fibula.

Hct 38.1-48.9%, 27.9% Low Hct is caused by excessive blood loss (Pagana, 2018). Related to open fracture of the tibia-fibula.

XR tibia and fibular 10/7/22, findings; internal distal tibial fracture and fibula shaft fracture relatively non-displaced. XR is related to a fracture of the tibia and fibula after a fall.

XR ankle complete 3 or greater view right leg 10/7/22, findings; Open fracture with swelling of the soft tissue. Displaced and comminuted fracture of the right distal tibial. XR is related to the fracture of the tibia and fibula.

XR food 2 views right leg 10/7/22, findings; ankle fracture deformity with a displaced distal tibial fracture and no foot fracture. XR is related to the fracture of the tibia and fibula.

XR knee 1 or 2 views 10/7/22, findings; the proximal fibular shaft fracture is displaced and comminuted. XR is also related to the fracture of the tibia and fibula.

**Active Orders**

Apixaban 2.5mg/1tabs, PO, BID, for 10 days. This medication is relevant for the diagnosis of tibia and fibula fracture Because it helps prevent systemic embolism and deep vein thrombosis.

Cholecalciferol vitamin D3 50mcg/1tab, PO, once daily. The patient has a history of low vitamin D levels. The patient has not been exposed to the sun since admission to promote the production of vitamin D.

Cephalexin 500mg/1cap, PO, Q8H. The patient has an open fracture of the tibia and fibula; due to the fracture, the patient has an increased risk of infection. This medication is ordered to prevent any infection.

Hydrocodone – acetaminophen 75mg – 325mg, PO, Q6H. The patient has this order because of the tibia and fibula fracture of the right leg. This medication has been ordered to prevent pain in the patient.

| Nursing Diagnosis 1 | Nursing Diagnosis 2 | Nursing Diagnosis 3 |
|---|---|---|
| Acute pain related to physical injury, as evidenced by the patient stating her pain is an 8 on a scale of 1 to 10 (Phelps, L. 2020). | Risk for falls related to impaired mobility as evidenced by using the assistive device (Phelps, L. 2020). | Risk for infection related to alteration in skin integrity as evidenced by surgical procedure (Phelps, L. 2020). |
| **Rationale**<br><br>The patient has a fracture of the fibula and tibia of the right leg caused by a fall. | **Rationale**<br><br>The patient has a fracture of the tibia and fibula of the right leg. The patient is postoperative and is utilizing a walker and needs assistance walking with the walker. | **Rationale**<br><br>The patient has a stitched and swollen leg from the internal fixation surgery of the tibia and fibula. Dressing changes are needed due to the drainage of fluid. |
| **Interventions**<br>**Intervention 1:** Asses the patient's signs and symptoms of pain behavioral cues and administer pain medication as prescribed. Monitor and record the medication's effectiveness and adverse effects (Phelps, L. 2020).<br>**Intervention 2:** Help the patient into a comfortable position and use pillows to splint or support painful areas as appropriate (Phelps, L. 2020). | **Interventions**<br>**Intervention 1:** Assess the patient's ability to use a call light or other safety emergency systems. Remove anything from the environment that will increase the risk of falls, for example, throw rugs, chords, and furniture blocking the patient's path to the bathroom (Phelps, L. 2020).<br>**Intervention 2:** Provide additional patient and family education for household safety (Phelps, L. 2020). | **Interventions**<br>**Intervention 1**: Minimize the patient's risk of infection by washing hands before and after providing care (Phelps, L. 2020).<br>**Intervention 2:** Teach the patient about good hand-washing techniques, factors that increase infection control, and signs and symptoms of infection (Phelps, L. 2020). |
| **Evaluation of Interventions**<br>The patient reports achieving pain relief with analgesia and other measures (Phelps, L. 2020).<br>The patient states satisfaction with the pain management regimen (Phelps, L. 2020). | **Evaluation of Interventions**<br>The patient and family can point out things in the environment that put the patient at risk for falls (Phelps, L. 2020).<br>The patient can demonstrate using a call light and other safety emergency systems (Phelps, L. 2020). | **Evaluation of Interventions**<br>The patient's incision or wounds remain clear, pink, and free from purulent drainage (Phelps, L. 2020).<br>The patient will demonstrate good hand-washing techniques and factors that increase infection control along with signs and symptoms of infection (Phelps, L. 2020). |

**Physical Exam/Assessment**

**General:** A&O X4 is oriented to person, place, situation, and time. The patient shows no sign of distress now. The patient is appropriately dressed for the current situation.

**Integument:** The patient skin color is appropriate for ethnicity no sign of cyanosis, rash, or lesions. The patient had a surgical wound and the right leg with sanguineous drainage. The skin is dry, warm, and intact. The patient skin turgor is less than three seconds. Braden's score is 14. The patient's temperature was 98 upon assessment. The patient has a wound drain present. The patient skin was warm with no sign of edema except in the right leg.

**HEENT:** The patient's head is normal cephalic, and the neck is symmetrical with the trachea at the midline. The carotid pulse is +2 bilaterally. There are no scarring, depressions, or palpable masses. The patient has patches of hair in the back head, and the hair is not evenly distributed. The patient's eyes are symmetrical, with no sign of exudates or hemorrhage. The left eye is perrla, and extraocular movements are intact. The patient's right eye does not accommodate. The eyes have no sign of nystagmus. The eyes have exophthalmos. The ears are symmetrical, with no sign of discharge and no tenderness. That tympanic membrane is normal in appearance, and hearing is intact. The nasal mucosa is pink and moist. The nasal septum is midline, and the nares are patent bilaterally. The patient's oral mucosa is pink and moist, and the pharynx is normal in appearance without tonsillar swelling or exudates.

**Cardiovascular:** The patient had sinus rhythm with S1 and S2 upon auscultation. Peripheral pulses are 3+ normal. The patient's capillary refill is less than two seconds. No neck vein distention or edema is present.

**Respiratory:** The patient has normal lung sounds. The diaphragm rises and falls symmetrically bilaterally. Normal lung sounds anteriorly and posteriorly. Respirations are intact. Respirations 18 per min. The patient did not use accessory muscles when breathing.

**Genitourinary:** The patient's urine was yellow and clear, with no abnormal odor. The patient voided x1 equal to 250ml in 5 hours. The patient had no dialysis or catheter in place. Burning and Frequency with urination.

**Gastrointestinal:** The patient is on a regular diet at the hospital. The patient's height is 66 inches, and weighs 136 pounds. The patient's bowel sounds were active in the right and left abdomen, and normal or active sounds in the lower right and left abdomen. The patient's last bowel movement was on the morning of 10/6/22. The abdomen did not appear distended, and no masses or wounds were present. The patient's abdomen had no scars, incisions, or lesions upon observation. The patient has no ostomy or nasogastric, or feeding tubes present.

**Musculoskeletal:** Steady gait, The patient, uses a walker to get around. The patient has both active and passive range of motion in all extremities except the right leg. Upper extremity strength is 5/5 bilaterally. Lower extremity strength is at 5/5 on the left side, and the right side couldn't be assessed due surgery wound. The patient can't bear weight on the right leg. The patient receives help with activities of daily living. The patient scored 25 on a fall risk scale. The patient requires assistance transferring. This patient requires assistive devices such as a walker. The patient gets contracted feet from time to time. Cold tingle under the feet and palms with no pain started 3 months ago. Stretching the feet relieves the pain.

**Neurological:** The patient's left pupil is perrla. The pupil does not accommodate. The patient is oriented to time, person, place, and situation. The patient has normal cognition and is alert and communicating frequently. The patient's speech is clear and intact. The patient is alert and awake, answering questions appropriately.

**Most recent VS (include date/time and highlight if abnormal**): 11:00am; Pulse 90, B/P 119/90, RR 18, T-98F, SPO2-98.

Pain and pain scale used: Scale (numerical), Location (right leg around calf region), Severity (8), characteristics (Constant, throbbing, pulsating), Interventions (pain medications).

**References (3) (APA):**

Capriotti, T. M. (2020). Davis Advantage for Pathophysiology Introductory Concepts and Clinical Perspectives. [FADavis].

Jones, D.W. (2021). *Nurse's drug handbook.* (A. Bartlett, Ed.) (19th ed.). Jones & Bartlett Learning.

Phelps, L. L. (2020). *Sparks & Taylor's nursing diagnosis reference manual* (11th ed.). Wolters Kluwer.