

Demographic Data

Date of admission: 07/01/2021

Admitting diagnosis: Motor Vehicle Accident

Age of client: 13 years old

Gender: Female

Allergies: No known allergies

Weight in kgs: 45.3 kg

Psychosocial Developmental Stage: Identity vs role confusion (Ricci et al., 2020)

Cognitive Developmental Stage: Formal operational (Ricci et al., 2020)

Medical History

Previous Medical History: Persistent right ear infection and effusion, ulcerative colitis

Prior Hospitalizations: No prior hospitalization was noted on the chart.

Chronic Medical Issues: Ulcerative colitis

Social needs: Father and mother provide care for the patient at home. Father at the bedside during the stay in the hospital.

Admission History

The patient is a 13-year-old female brought to the emergency department by EMS after a high-speed motor vehicle accident. She was a restrained back-seat passenger that sustained a bruising on the left hip and deformity on the right upper arms. She was suspected of having head trauma and reports neck and back pain. She denies any visual disturbance, vomiting, or loss of consciousness. Symptoms management before being admitted does not apply due to being a trauma patient.

Pathophysiology

Disease process:

According to Capriotti (2020), fracture occurs when there is a break, complete or incomplete, in the continuity of a bone. A fracture can happen due to trauma such as fall or motor vehicle accident and sports injuries. Capriotti (2020) states that there are three stages of fracture healing. The first stage happens when fractures happen. The inflammatory phase occurs where hematoma forms at the fracture site due to bleeding between the edges of the fractured bone. Inflammation that happens during these stages causes vascular permeability and WBC attraction, which invades the bone. The second stage is where the repair happens. Fibroblasts are attracted to fracture sites which helps stimulate the formation of callus that consist of osteoblast and chondroblast that produces newly formed mineralized bone that takes weeks to happen. The last stage is remodeling, where the bone is ossified and rebuilds by the osteoclast and osteoblast (Capriotti, 2020).

S/S of disease:

The sign and symptoms depend on the injury's location, severity, and type. Some common signs and symptoms are pain or tenderness at the site, decreased range of motion, immobility, deformity, edema, erythema, muscle spasm, ecchymosis, and inability to bear weight on the affected side (Swearingen & Wright, 2019).

Method of Diagnosis:

Radiographic examination or x-ray is used to determine and diagnose the type and location of a fracture. CT scan, MRI, and ultrasound can also be used to evaluate the injury/fracture (Swearingen & Wright, 2019)

Treatment of disease:

Treatment is depending on the severity of the fracture. Minor injury common treatments are bed rest, immobilization, and pain management. Cast, sling, brace, traction, external/internal fixation, and open reduction can also be used. Surgery to stabilize and control bleeding is done in severe cases (Capriotti, 2020). In the patient case, she is on strict bed rest due to her pelvic fracture, and she is wearing a sling on her right arm.

Relevant Lab Values/Diagnostics

CBC

WBC (4.19 – 9.43 $10^3/\mu\text{L}$): 50.59 \uparrow = Elevated WBC count may be associated with trauma, stress, and inflammation (Pagana et al., 2020). The patient was involved in a motor vehicle accident and sustained multiple trauma injuries, which causes inflammation in the affected area and stress overall.

RBC (3.93 – 4.90 $10^6/\mu\text{L}$): 3.66 \downarrow = The patient has a decreased RBC level associated with bleeding due to a fracture of the bone. Blood loss can happen with fracture, which decreases RBC, Hgb, HCT levels (Pagana et al., 2020).

Hgb (10.8 – 13.3 g/dL): 9.4 \downarrow = The patient has a decreased hemoglobin level associated with bleeding due to a fracture of the bone. Blood loss can happen with fracture, which decreases RBC, Hgb, HCT levels (Pagana et al., 2020).

HCT (33.4 – 40.4%): 31.3 \downarrow = The patient has a decreased hematocrit level associated with bleeding due to a fracture of the bone. Blood loss can happen with fracture, which decreases RBC, Hgb, HCT levels (Pagana et al., 2020).

Platelet (194-345 $10^3/\mu\text{L}$): 393 \uparrow = The patient has elevated platelet count due to injury sustained from MVA. Elevation of platelet may occur due to the inflammatory process associated with injury (Pagana et al., 2020).

CMP

Potassium (3.5 – 5.1 mmol/L): 3.1 \downarrow = The patient has a decreased level of potassium due to trauma sustained from MVA. Trauma can cause a shift of potassium into cells that causes hypokalemia (Pagana et al., 2020).

Imaging

(The imaging are done to see if there is a fracture to the bone. In addition, to see the extent/severity of injuries the patient sustained due to MVA.)

- **Pelvic XR:** indication was left hip bruising. The result show left pelvic fracture due to moto vehicle accident.
- **Right Humerus XR:** indication was right upper arm deformity. The result show closed fracture of the right humerus and mid-right humeral diaphyseal fracture with displacement due to motor vehicle accident.

Medications

Acetaminophen/Tylenol (Nonsalicylate, para-aminophenol derivate/ antipyretic, and nonopioid analgesic): used for pain and fever.

- There is a risk of overdose; ensure the patient is not taking any other medication that has acetaminophen and measures the medication correctly before giving the patient (Frandsen & Pennington, 2020)

Fentanyl (opioid analgesic): used for pain.

- Assess the patient's vital signs, such as respiration due to increased risk of respiratory depression (Jones & Bartlett, 2019).

Oxycodone (opioid analgesic): used for severe pain rated 7-10.

- Assess the patient's pain level and vital signs, especially respiration and blood pressure, before administering due to the risk of severe hypotension and respiratory distress (Jones & Bartlett, 2019).

Active Orders

- **Vital sign Q4H:** assessing vital signs every four hours will help determine whether the patient's condition worsens or improves.
- **Neuro check Q4h:** doing a neuro check every four hours will help recognize any change in neurological functions and level of consciousness of the patient due to the accident.
- **Trauma pain protocol Q2h (Rest, Ice, Compression, and Elevation):** to help relieve pain, swelling and promote healing of the injury the patient sustained in the accident.
- **Pain management medication (Tylenol, Oxycodone, or Fentanyl):** the patient is experiencing pain due to injury, and continuous pain management is vital for the patient to feel more comfortable.
- **Weight-bearing limitation (Right arm and left leg: non-weight bearing):** the patient sustained a pelvic fracture, injury to the right arm and left leg. A weight-bearing limitation is essential to prevent further injury and prolong recovery time.
- **Strict bed rest:** the patient sustained a pelvic fracture, injury to the right arm and left leg. Bedrest is essential to prevent further injury and prolong recovery time.
- **Diet-Regular:** the patient must eat or have the proper nutrition to help her recover and gain strength after the accident.

Assessment

General	Integument	HEENT	Cardiovascular	Respiratory	Genitourinary	Musculoskeletal	Neurological	Most recent VS (highlight if abnormal)	Pain and Pain Scale Used
<p>The patient is alert and responsive; oriented to person, place, time, situation; appears uncomfortable, unease, and weak due to left pelvic fracture and right arm fracture; appropriately dressed.</p>	<p>Skin color usual for ethnicity; dry, intact, tight skin turgor; no rashes, wounds, drains noted. Bruising on the upper right arm and left hip noted. Braden score: 16</p>	<p>Head is normocephalic with symmetrical facial features. The neck and trachea are midline with no deviations. PERRLA is noted with normal EOM. No visual impairment. There is no abnormal drainage or erythema noted from the nose. Teeth are intact and white in color. Mucosa of the mouth is pink and moist. No enlarged or displaced thyroid is noted.</p>	<p>S1, S2 clear with no murmur; No friction rubs or gallop; Regular heart rhythm; Pulses: 2+ radial bilaterally; Capillary refill <3 seconds; No neck vein distention, absent edema</p>	<p>No accessory muscle used; Regular respiratory rate and pattern; Clear lung sounds in all lobes anteriorly. No adventitious breath sounds are noted.</p>	<p>Urine is clear and yellow in color. No distinct odor is noted. She denies pain with urination. She voided 200 mL during my rotation. No genital abnormalities noted.</p>	<p>Pink nailbeds, cap refill <3 seconds, warm extremities; ROM severely impaired on right upper extremities and left lower extremities. Weakness noted on RUE and LLE. Strength is not equal in the upper and lower extremities bilaterally. Patient is on strict bed rest. Fall score: 40</p>	<p>Cannot move all extremities well (RUE and LLE impairment); PERRLA present; alert and oriented to person, place, time, situation; normal cognition; clear speech; awake & answer questions appropriately</p>	<p>Time: 1506 Temperature: 99 F Route: oral RR: 18 bpm HR: 90 bpm BP and MAP: 123/77 mmHg (92 mmHg) Oxygen saturation: 97% Oxygen needs: N/A (room air)</p>	<p>Time: 1506 Numerical scale; 5/10; describe as a “constant aching pain” in the right arm; Tylenol was administered. Time: 1700 Numerical scale: 4/10 describe as a “constant aching pain” in the right arm; The nurse said to administer Oxycodone.</p>

Nursing Diagnosis 1	Nursing Diagnosis 2	Nursing Diagnosis 3
Acute pain related to the right arm and pelvic fracture as evidence by a 5/10 pain assessment and facial mask of pain.	Anxiety related to the right arm and pelvic fracture as evidence by the patient's feeling of discomfort and unease.	Impaired physical mobility related to the right arm and pelvic fracture as evidence by severely impaired ROM on the right upper extremity and left lower extremity.
<p align="center">Rationale</p> <p>Acute pain is a high priority. The patient sustained multiple injuries/fractures due to MVA. She is in constant pain.</p>	<p align="center">Rationale</p> <p>The patient was experiencing discomfort and uneasiness due to the injury she sustained. She is only 13 years old and first time to experience injury/ fracture to her pelvic and arm.</p>	<p align="center">Rationale</p> <p>The patient sustained a right arm fracture and left hip fracture due to MVA. Due to these injuries, the patient's range of motion is impaired and has decreased muscle strength.</p>
<p align="center">Interventions</p> <p>Intervention 1: Assess pain before and after analgesia administration (45 minutes) and at least every four hours using an appropriate pain scale for the patient (numeric scale). Intervention 2: Administer pain medication around the clock.</p>	<p align="center">Interventions</p> <p>Intervention 1: Provide a low stimulus, organized, quiet environment for the patient. Intervention 2: Interact with the patient calmly and peaceful manner. Explain everything in simple terms that the patient will understand.</p>	<p align="center">Interventions</p> <p>Intervention 1: Ensure the patient receives pain management as prescribe (Swearingen & Wright, 2019). Intervention 2: Assist with self-care activities and allow the patient to participate as tolerated.</p>
<p align="center">Evaluation of Interventions</p> <p>During my assessment, the patient report pain of 5/10. While reviewing the patient chart, I found that the nurse administers Tylenol 15 minutes ago before my assessment and her pain level was 6/10, so her pain level was going down.</p>	<p align="center">Evaluation of Interventions</p> <p>The patient is provided with a low stimulus and quiet environment to rest more and prevent sensory overload, which may cause further anxiety. We interact with the patient calmly and explain everything, so the patient will be able to understand and be aware of what we are doing.</p>	<p align="center">Evaluation of Interventions</p> <p>We ensure that she receives pain medication as prescribed because unmanaged pain limits the patient physical mobility further. We assist her with toileting with a bedpan and allow her to participate by lifting her buttock as she can tolerate it.</p>

Reference:

Capriotti, T. (2020). *Davis advantage for pathophysiology: Introductory concepts and clinical perspectives* (2nd ed.). F.A. Davis Company

Frandsen, G., & Pennington, S. (2020). *Abrams' clinical drug therapy: Rationales for nursing practice* (12th ed.). LWW.

Jones & Bartlett Learning. (2019). *2020 nurse's drug handbook* (19th ed.). Jones & Bartlett Learning.

Pagana, K. D., Pagana, T. J., & Pagana, T. N. (2020). *Mosby's diagnostic and laboratory test reference* (15th ed.). Elsevier.

Ricci, S. S., Kyle, T., & Carman, S. (2020). *Maternity and pediatric nursing* (4th ed.). Wolters Kluwer.

Swearingen, P. L., & Wright, J. D. (2019). *All-in-one nursing care planning resource medical-surgical, pediatric, maternity, and psychiatric-mental health* (5th ed.). Elsevier.