

Medications

Potassium chloride in 5% dextrose/ Electrolyte cation/Electrolyte replacement: D5 ½ NS c 20 mEq KCL @ 65 mL/hr running continuously for increased levels of calcium (12.0). IV fluid to hydrate the patient and reduce calcium levels. Prior to administration: Review medical history due to risk of developing hyperkalemia and check potassium levels (Jones and Bartlett, 2020).

Acetaminophen/Tylenol/ Nonsalicylate/Antipyretic: 15 mg/kg IV q4h PRN pain. Patient pain 1-2, fever >101. Prior to administration assess temperature and pain level (Jones and Bartlett, 2020).

Morphine/MS Contin/Opioid/Opioid analgesic: 0.1 mg/kg IV q4h PRN extreme breakthrough pain (pain >7). Given post amputation for pain management. Prior to administration make sure opioid antagonist and equipment for oxygen delivery is available (Jones and Bartlett, 2020).

Diphenhydramine/Benadryl/Antihistamine/Antiemetic: 5 mg/kg/24-hour PO q6h x1 dose. Premedication to prevent fever and chills. Prior to administration monitor vital signs (hypotension), obtain complete health history (Jones and Bartlett, 2020).

Acetaminophen/Tylenol/ Nonsalicylate/Antipyretic 15 mg/kg PO q6h PRN pain with codeine elixir 12.5 mg/5 mL – give 10 mL PO q6h PRN pain: Given for pain (3-6): Prior to administration monitor patient's respiratory rate and make sure to shake the bottle well before dose is given.

Acetaminophen/Tylenol/ Nonsalicylate/Antipyretic 15 mg/kg PO q6h PRN pain with codeine elixir 12.5 mg/5 mL – give 10 mL PO q6h PRN pain: Given for pain (3-6): Prior to administration monitor patient's respiratory rate and make sure to shake the bottle well before dose is given (Jones and Bartlett, 2020).

Zosyn/ Piperacillin/Tazobactam/Penicillin Antibiotic/Beta-lactamase 1 gram in 50 mL NS IVPB to infuse over 30 minutes q8h x 2 doses. Used to prevent bacterial infections due to amputation: Prior to administration check culture and sensitivity, monitor vital signs before administration (Jones and Bartlett, 2020).

Demographic Data

Admitting diagnosis: Osteosarcoma with secondary tibial fracture

Chief Complaint: right lower leg pain

Psychosocial Developmental Stage: Industry vs, Inferiority

Age of client: 11 years old

Sex: Female

Weight in kgs: 24 kg

Cognitive Development Stage: Formal operational

Allergies: No known allergies

Date of admission: 2/12/2022

Admission History

The patient was brought to the hospital for having feelings of fatigue for an extensive period of time and pain in the lower right leg below the knee. The patient had been experiencing pain for the past month. The patient would not tell her mother in fear she would not be able to participate in soccer.

Pathophysiology

Disease process: Osteosarcoma is a type of cancer that begins in the bones. This disease affects majority of individuals younger than 20 years old (Capriotti,2021). Osteosarcoma more commonly happens in long bones around the knee. The mass may grow into nearby tissues, such as muscles or tendons. It may also metastasize through the blood stream, other organs, or bones in the body (Capriotti,2021). The exact cause is unknown but believed to be from DNA mutations inside bone cells which can be inherited at birth.

S/S of disease: Pain in the affected bone and swelling around the affected site. Increased pain with lifting or activity, limping, and decreased movement of the affected limb. May see anemia (low hemoglobin), elevated red blood cells, elevated white blood cells, and elevated platelet count (Capriotti,2021).

Method of Diagnosis: The patient was diagnosed by right leg x-ray that showed a closed complete fracture of the proximal tibia with femur mass notes on diagnostic exam. Also, a bone scan that showed no evidence of metastasis to other sites.

Treatment of disease: Surgery including biopsy, amputation, bone/skin grafts or reconstruction. Chemotherapy or radiation therapy. Physical therapy, occupational therapy, or psychological adapting. Prosthesis fitting and training, antibiotics for prevention of infection and follow up care to decided further treatment options (Capriotti,2021).

Relevant Lab Values/Diagnostics

RBC: Normal: 4.5-5.6; Today: **5.7**; increase due to secondary condition of tibial fracture (Ricci et. al., 2021)

Hgb: Normal: 12-15; Today: **8**; decreased due to osteosarcoma, cancer can cause inflammation which can decrease the red blood cell production (Ricci et. al., 2021)

Hct: Normal: 35-45; Today: **32**; decreased due to osteosarcoma, cancer can cause inflammation which can decrease the red blood cell production (Ricci et. al., 2021)

Calcium: Normal: 8.8-10.8; Today: **12.0**; Admission: **11.0**; decreased due to osteosarcoma; interferes with the calcium levels in the bones by damaging them and releasing calcium in bloodstream (Ricci et. al., 2021)

Chloride: Normal: 95-105; Today: **90**; due to reduced blood volume connected to low hct level, due to osteosarcoma (Ricci et. al., 2021)

Right Leg X-ray showed a closed complete fracture of the proximal tibia with femur mass noted: mass indicates bone cancer; osteosarcoma (Ricci et. al., 2021)

CT and Chest X-ray showed no metastatic pulmonary disease: indicates cancer did not show up in other places of the body or lungs (Ricci et. al., 2021)

Bone Scan showed no distant metastatic sites noted: indicated cancer did not spread to other bone sites in the body (Ricci et. al., 2021)

Medical History

Previous Medical History: N/A

Prior Hospitalizations: N/A

Chronic Medical Issues: N/A

Social needs: Help with care at home due to parents divorced and 3 young children

Active Orders

VS q4 with BP: After amputation, increase in blood pressure, heart rate and nerve activity may arise: important to monitor

Regular diet: allowed to eat normal foods, regular to home with no restrictions

D/C IV fluids: if fluids are not stopped, they could start to surround tissues and increase or cause additional swelling or pain

72-hour calorie count – consult dietary to evaluate nutrition status: on a current regular diet, Dr wants to know calorie count to ensure she is receiving enough calories for the body post-surgery

Out of bed TID: ambulation is important to prevent immobilization risk factors like development of clotting

Start TPN at 25 mL/hr through PowerPort: provide nutrients the body needs through a port due to the cancer, less painful and lowers risk of infection

PT TID for range of motion, strengthening, and crutch gait training: teach patient how to adapt to amputation and ADL's

Repeat CBC & CMP - completed.: help diagnosis, monitor for infections and review baseline labs to see if treatment is effective

Continuous pulse oximetry: O2 per protocol to keep sats >= 94%.: post anesthesia may result in decreased oxygenation

Incentive Spirometry q1h while awake: help clearance of lungs and recovery after surgery

Assessment

| General | Integument | HEENT | Cardiovascular | Respiratory | Genitourinary | Gastrointestinal | Musculoskeletal | Neurological | Most recent VS (highlight if abnormal) | Pain and Pain Scale Used |
|---------------------------------------|--|-------|---|--------------------------------------|--|---|--|---|--|--------------------------|
| The patient is alert and oriented x4. | N/A The patient had a below the knee amputation of the right lower leg. | N/A | The patient had 3+ pulses on all extremities, with a cap refill <2 seconds. | The patient's lung sounds are clear. | The patient is eating less than 25 % of her meals. Height: 143 cm Daily wt: 20.5 kg Bowel sounds are present in all four quadrants. | The patient's urine output is 1500 mL in the last 24 hours. | N/A The patient had a below the knee amputation of the right lower leg. | The patient is quiet, withdrawn, only responds to direct questions following the surgery. The patient refuses to look at stump. | Time: 1200 Temperature: 37.6 C Route: orally RR: 20 breaths HR: 80 bpm BP and MAP: 104/70 Oxygen saturation: 97% RA Oxygen needs: N/A | Pain 2/10 Faces scale |

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|---|--|---|
| <p align="center">Nursing Diagnosis 1</p> <p>Ineffective protection may be related to abnormal blood levels as evidence by low hemoglobin and hematocrit</p> | <p align="center">Nursing Diagnosis 2</p> <p>Increased anxiety may be related to amputation of the right lower leg as evidence by the patient was not able to tell her mother she was in pain due to fear of missing soccer</p> | <p align="center">Nursing Diagnosis 3</p> <p>Risk for injury may be related to amputation of the right lower leg as evidence by improper alignment of the stump and psychosocial maladaptation to the condition.</p> |
| <p align="center">Rationale</p> <p>I chose this nursing diagnosis because the patient the patient has cancer of the bone along with a fracture which can turn into aplastic anemia where the bone marrow will not be able to create any blood cells.</p> | <p align="center">Rationale</p> <p>I chose this nursing intervention because the patient was in pain for about a month before going to the hospital in fear, she would not be able to play soccer. The patient had to undergo a right leg amputation and is not able to look at her stub.</p> | <p align="center">Rationale</p> <p>I chose this nursing intervention because the patient is having a challenging time adapting to the amputation of her right lower leg. The patient is not able to even look at the stump which can cause risk for further infection, improper alignment, and inability to properly heal.</p> |
| <p align="center">Interventions</p> <p>Intervention 1: Encourage increase of iron intake Intervention 2: Routine blood test</p> | <p align="center">Interventions</p> <p>Intervention 1: Assess need for special counseling service for the child Intervention 2: Introduce the child to another who has undergone an amputation</p> | <p align="center">Interventions</p> <p>Intervention 1: Reassure the child that feelings of denial, anger, and sadness are normal following an amputation Intervention 2: Stress the importance of performing daily activities and avoiding advanced immobility</p> |
| <p align="center">Evaluation of Interventions</p> <p>The increase in iron will aid in rebalancing the low levels of hemoglobin and hematocrit. Implementing routine blood test will show the effectiveness of treatment and identify if any changes need to be made.</p> | <p align="center">Evaluation of Interventions</p> <p>The patient will feel supported and be able to adjust to new lifestyle changes. The patient will be able to feel more comfortable and support by having someone with the same condition.</p> | <p align="center">Evaluation of Interventions</p> <p>The patient will be able to slowly start to accept the loss of the limb. The patient will begin to be mobile and start to perform activities with new limitations.</p> |

References (3):

Capriotti, T. (2020). *Davis Advantage for pathophysiology: Introductory concepts and clinical perspectives*. F.A. Davis.

Jones and Bartlett, (2020). *Jones & Bartlett learning: 2020 nurse's drug handbook*.

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Ricci, S. S., Kyle, T., & Carman, S. (2021). *Maternity and pediatric nursing*. Wolters Kluwer.