

Medications

Amlodipine (Norvasc) 10 mg tablet PO every day to control hypertension and prevent chest pain. Pharmacological Class: Calcium Channel Blocker (Jones & Bartlett Learning, 2021). Therapeutic Class: Antianginal, antihypertensive (Jones & Bartlett Learning, 2021). Key Nursing Assessment: Monitor patient with impaired hepatic function and monitor B/P when adjusting dosage, assess frequently for chest pain. Can be taken with food to reduce GI upset (Jones & Bartlett Learning, 2021).

Carvedilol (Coreg) tablet 6.25 mg PO BID to control hypertension. Pharmacological Class: Nonselective beta blocker and alpha-1 blocker (Jones & Bartlett Learning, 2021). Therapeutic Class: Antihypertensive, HF treatment adjunct (Jones & Bartlett Learning, 2021). Key Nursing Assessment: Monitor B/G, this medication may mask hypoglycemia and may alter B/G level (Jones & Bartlett Learning, 2021).

Cefepime (Maxipime) 1 g in Sodium Chloride 0.9% 100 mL IVPB for treatment of cellulitis. Pharmacological Class: Fourth Gen. cephalosporin (Jones & Bartlett Learning, 2021). Therapeutic Class: Antibiotic (Jones & Bartlett Learning, 2021). Key Nursing Assessment: For clients with impaired renal function, watch for s/s of neurotoxicity. Monitor BUN and creatinine level for s/s of nephrotoxicity (Jones & Bartlett Learning, 2021).

Enoxaparin (Lovenox) injection 40 mg Subcutaneous every day to prevent DVT. Pharmacological Class: Low-molecular-weight heparin (Jones & Bartlett Learning, 2021). Therapeutic Class: Anticoagulant (Jones & Bartlett Learning, 2021). Key Nursing Assessment: For patient with impaired renal function, check serum K level for elevation. Increased risk for hemorrhage can occur, client can bleed easily that may take longer than usual to stop (Jones & Bartlett Learning, 2021).

Losartan (Cozaar) 100 mg tablet PO every day to manage hypertension. Pharmacological Class: Angiotensin II receptor blocker (Jones & Bartlett Learning, 2021). Therapeutic Class: Antihypertensive (Jones & Bartlett Learning, 2021). Key Nursing Assessment: Periodically monitor client's serum K level to detect hyperkalemia. Instruct patient to avoid salt substitute that contains potassium (Jones & Bartlett Learning, 2021).

Triamcinolone (Aristocort) 0.5% cream Topical BID to treat inflammation. Pharmacological Class: Glucocorticoid (Jones & Bartlett Learning, 2021). Therapeutic Class: Corticosteroid (Jones & Bartlett Learning, 2021). Key Nursing Assessment: Toxicity can occur as evidence by hypotension and metabolic acidosis (Jones & Bartlett Learning, 2021).

Potassium Chloride SA (Klorcon M) 20 mEq tablet PO BID with meals to treat hypokalemia. Pharmacological Class: Electrolyte (Jones & Bartlett Learning, 2021).

Lab Values/Diagnostics

Potassium: 3.2 mmol/L
Normal: 3.5-5.1 mmol/L
Reason for abnormal: Low Potassium level can be a result from excess insulin, glucose administration, diarrhea, vomiting, deficient intake of potassium (Pagana et al., 2022). The client is likely to have deficient dietary intake of potassium.

Chloride: 109 mmol/L
Normal: 98-107 mmol/L
Reason for abnormal: An increased level of Chloride can be caused by dehydration, excessive infusion of normal saline, metabolic acidosis, kidney dysfunction, respiratory alkalosis (Pagana et al., 2022). The client's decreased level of Chloride is likely caused by dehydration.

T Bil: 1.8 mg/dL
Normal: 0.2-1.2 mg/dL
Reason for abnormal: An increased level of Bilirubin can be caused by gallstones, sepsis, cholestasis, transfusion reactions/large-volume blood transfusion (Pagana et al., 2022). The client is likely to have an reaction to infection and inflammation to RLE.

Lactic Acid: 2.2 mg/dL
Normal: 0.7-2.0 mg/dL
Reason for abnormal: An increased level of Lactic Acid can be caused by sepsis, shock, strenuous exercise, DM, carbon monoxide poisoning (Pagana et al., 2022). The patient is likely to have a reaction to inflammation and infection to RLE.

WBC: 18.00
Normal: 4.00-12.00
Reason for abnormal: An increased level of WBC count can be caused by Leukemia, infection, stress, trauma, hemorrhage, inflammation, dehydration, thyroid storm, steroid use. The reason why client's WBC is because of infection, inflammation, and dehydration.

Neutrophil: 86.9 %
Normal: 47.0%-73.0%
Reason for abnormal: An increased level of Neutrophil can be an indication of Neutrophilia, inflammatory disorders, metabolic disorders, physical or emotional stress, and trauma (Pagana et al., 2022). The client has elevated Neutrophil level because of inflammation reaction and stress.

Lymphocyte: 3.4
Normal: 18.0-42.0
Reason for abnormal: An increased level of Lymphocyte can be an indication Lymphocytosis, chronic bacterial infection, viral infection and radiation (Pagana et al., 2022). The patient has bacterial infection

Demographic Data

Date of Admission: 02/09/23

Admission Diagnosis/Chief Complaint: RLE

Cellulitis/Right leg redness, pain, itchiness.

Age: 68 years old

Gender: Male

Race/Ethnicity: Caucasian/Non-Hispanic or Latino

Allergies: No Known Allergy

Code Status: Full Code

Height in cm: 188 cm

Weight in kg: 85.8 kg

Psychosocial Developmental Stage: Integrity vs Despair

Cognitive Developmental Stage: Formal Operational

Braden Score: 22

Morse Fall Score: 29

Infection Control Precautions: Standard Precaution

Admission History

A 68-year-old male resented to OSF on 02/09/23 with complains of severe swelling, redness, pain, and itchiness on the right lower leg which has started four days before admission. The client denies pain when the affected leg is not moved. The client complains of itchiness and pain upon exertion that can be relieved by not putting pressure and elevating the leg. Home treatment of Betamethasone is on hand and client verbalized adherence to topical administration. DVT is ruled out.

Medical History

Previous Medical History: Hypertension, Dermatitis, CKD stage III, WBC count 20,000

Prior Hospitalizations: RLE cellulitis on 02/09/23

Previous Surgical History: Appendectomy in 2012 and Kidney Stone removal in 1982

Social History: Client denies the use of tobacco products and smokeless tobacco, use alcohol, and use of synthetic and recreational drugs.

Pathophysiology

Cellulitis is a soft tissue and bacterial skin infection which occurs when the immune system and physical skin barrier, and/or the circulatory system are impaired. The first episode's inflammation has also likely damaged local lymphatic channels. Drainage is then insufficient, antigen presenting cells cannot migrate, and accumulating protein-rich fluid accommodates invading bacteria (Cranendonk et. al., 2017). According to Brown, cellulitis is characterized by warmth, erythema, edema or swelling, and pain and tenderness when palpated that is result from neutrophil and cytokine response when bacteria breach the epidermis. The neutrophils and cytokines travel to the affected area after bacteria have penetrated the skin that leads to an epidermal response. This response includes the production of keratinocyte and antimicrobial peptides proliferation and is postulated to produce the characteristic exam findings in cellulitis. The most common bacteria to cause cellulitis are Group A Streptococci can also produce virulence factors such as streptococcal superantigen and pyrogenic exotoxins that can lead to a more invasive and pronounced disease. Cellulitis typically presents as a poorly demarcated, warm, erythematous area with associated edema and tenderness to palpation. The infection is without an abscess or purulent discharge. Two of the four criteria which are erythema, warmth, edema, or tenderness are required to make the diagnosis. Other diagnostics for cellulitis is skin assessment, wound culture, and punch biopsy/needle aspiration culture. Skin is evaluated thoroughly to find potential cause of inflammation such as micro abrasion, open wound injury, insect bite, animal bite, and pressure ulcers. Blood cultures showing an elevation of WBC, Neutrophils and CRP will reflect on clients with infection and inflammation (Brown & Hood, 2022). The treatment and management of cellulitis is antibiotic therapy. The client had received one time dose of Vancomycin 2500 mg over 2.5 hour on 02/09 and Cefepime antibiotic course with the dosage of 1 g in 100 mL Sodium Chloride 0.9% and a onetime dose of Furosemide 40 mg to manage edema and fluid overload.

Active Orders

Code Status: CPR/Full Code per client's wishes.
Diet: Cardiac due to client's diagnosis of Hypertension
Pulse Oximetry: Spot Check to assess oxygen saturation.
Admission Weight: Nurse Discretion to obtain basal measurement.
Insert/Maintain Peripheral IV for medication administration.
I&O indicated for fluid volume overload.
Notify Physician for abnormal VS <50 bpm or >120 bpm, <10 RR, >30 RR, temperature <101.5, urine output 240 mL/8hr.
SBP less than 85 or greater than 180
DBP less than 50 or greater than 105
Pulse O2 less than 90
New onset or worsening pain.
This protocol is to detect and monitor medical problems.
Up as tolerated to promote client independence.
Vital Sign per routine
Wound/Ostomy/Eval and Treat due to RLE cellulitis.

Physical Exam/Assessment

General: Alert and oriented to person, time, place, orientation. No acute distress. Appearance was appropriate and well-groomed. Answers are appropriate.

Integument: Skin color is white, increased warmth in RLE, skin turgor-normal mobility, dry and intact. No rashes and bruises noted. Scab from scratching on RLE noted. No drains present. Peripheral IV on right arm, dressing intact, saline lock in place.

HEENT: Head and neck is symmetrical. Trachea is midline. Ears symmetrical bilaterally, no redness and drainage, no deformity. Eyes: sclera is white, no drainage, discharge, or redness. No lesion. Septum is midline, no visible drainage or nosebleed. Uses prescription eyeglasses. Good dentition does not use dentures. Oral mucosa moist and pink

Cardiovascular: S1 S2 noted. No murmur, gallops or rubs. Pulses 2+ throughout bilaterally. Cap refill less than 3 seconds. No neck vein distention. 2+ edema present on the RLE.

Respiratory: Do not use accessory muscles, no labored breathing, fine crackles heard on Left and Right lower lobe posteriorly and anteriorly. Normal rate and pattern of respiration.

Genitourinary: urine color is yellow, 2 occurrences within five-hour period. Denies voiding problems.

Gastrointestinal: Cardiac diet, bowel sounds are hypoactive in all four quadrants. Last bowel movement was 2/12. Denies constipation or loose bowel movement. No masses and pain noted. Surgical scar noted on right upper quadrant of the abdomen for kidney stone removal surgery. No drains, wounds, or tenderness noted.

Musculoskeletal: No clubbing and cyanosis on fingers. Upper extremity ROM: full, Lower extremities: Limited on the RLE d/t cellulitis. Supportive device includes bed rail and wall handrails. 1-person standby assist when ambulating.

Neurological: PERRLA, alert, answer question appropriately. Senses are normal and intact. Speech clear, normal speed.

Most recent VS (include date/time and highlight if abnormal): B/P: 124/78, P: 67, T: 98.4, O2: 96, RR: 18.

Pain and pain scale used: verbalization of 4 out 10 on pain scale.

<p align="center">Nursing Diagnosis 1</p> <p>Risk for infection related to presence of pathogen as evidence by broken skin and scabbing.</p>	<p align="center">Nursing Diagnosis 2</p> <p>Impaired skin integrity related to wound scratches as evidence by scabs.</p>	<p align="center">Nursing Diagnosis 3</p> <p>Acute Pain related to inflammation of the RLE as evidence by verbal report of pain and facing grimacing.</p>
<p align="center">Rationale</p> <p>The client is at great risk for infection or worsening infection from scratching the skin on the RLE.</p>	<p align="center">Rationale</p> <p>The client is susceptible to impaired wound healing due to infection of RLE.</p>	<p align="center">Rationale</p> <p>The patient reports pain upon exertion of the lower leg. It limits his mobility and independence to do ADL.</p>
<p align="center">Interventions</p> <p>Intervention 1: Educate on the importance of preventing infection such as maintaining a clean environment and washing hand frequently to avoid the spread of bacteria.</p> <p>Intervention 2: Instruct the client to avoid scratching or rubbing the affected leg because an open skin is a portal of entry for bacteria. Encourage client to cut fingernails short (Ackley et al., 2021).</p>	<p align="center">Interventions</p> <p>Intervention 1: Elevate the affected leg to alleviate swelling. Use pillow to prop the extremity.</p> <p>Intervention 2: To avoid skin breakdown, instruct the client to avoid putting pressure on the area. Wear loose pants that does not create friction on the skin (Ackley et al., 2021).</p>	<p align="center">Interventions</p> <p>Intervention 1: Provide nonpharmacologic pain management unless contraindicated such as cold and warm therapy.</p> <p>Intervention 2: Administer pain medication before doing nursing care such as wound assessment and care it will result to compliance of care and provide comfort (Ackley et al., 2021).</p>
<p align="center">Evaluation of Interventions</p> <p>Patient will not experience signs of infection such as fever, chills, and confusion.</p>	<p align="center">Evaluation of Interventions</p> <p>Patient will not experience worsening cellulitis and will have intact skin.</p>	<p align="center">Evaluation of Interventions</p> <p>The patient will have controlled pain within 2 hours.</p>

References (3) (APA):

- Ackley, B., Ladwig, G., Makic, M., Kratz, M., Zandotti, M. (2021). *Nursing Diagnosis Handbook: An Evidence-Based Guide to Planning Care*. (12th ed.) Elsevier.
- Brown, B. D., & Hood Watson, K. L. (2022). Cellulitis. In *StatPearls*. StatPearls Publishing.
- Cranendonk, D. R., Lavrijsen, A. P. M., Prins, J. M., & Wiersinga, W. J. (2017). Cellulitis: current insights into pathophysiology and clinical management. *The Netherlands journal of medicine*, 75(9), 366–378.
- Jones & Bartlett Learning, J. (2021, December 21). *2022 Nurse's Drug Handbook*. NDH.
- Pagana, K. D., Pagana, T. J., & Pagana, T. N. (2020). *Mosby's® Diagnostic and Laboratory Test Reference*. (15th ed.). Mosby.

Lab and diagnostic continuation.

Protein, Random: 2+

Normal: Negative

Reason for abnormal: A trace of protein in the urine can be caused by contaminated urine, high protein diet, drug that can cause protein level such as Vancomycin (Pagana et.al., 2022). The client's intake of Vancomycin has likely to have cause the trace of protein in the urine.

Urine, blood: 2+

Normal: negEry/ul

Reason for abnormal: The blood in the urine can indicate hematuria that can be caused by inflammation of the bladder kidney, prostate, urethra, and UTI. (Pagana et.al., 2022).

Urine, RBC: 6-10

Normal: Neg, 0-2 hpF

Reason for abnormal: An overaggressive anticoagulant therapy or bleeding disorders tend to cause a trace of blood in the urine (Pagana et.al., 2022).

WBC Esterase- Trace

Normal: Negative

Reason for abnormal: A trace of the client's WBC Esterase can indicate a possible UTI.

Bacteria- urine- few

Normal: Negative

Reason for abnormal: The client's urine sample is likely to have been contaminated with bacteria.

Casts: 10-20/LPF coarsely Granular Casts**1-5/LPF Hyaline Casts**

Normal: None

Reason for abnormal: A clinical significance of Granular and Hyaline casts are UTI, stress, exercise, proteinuria, fever, CHF, chronic renal failure (Pagana et.al., 2022). The presence of casts is likely because of stress and renal failure.

Urine Ketones: Trace

Normal: Negative

Reason for abnormal: A trace of Ketones in urine is indicative of poorly controlled DM, starvation, Alcoholism, prolonged vomiting, high protein diet, hyperthyroidism, severe stress or illness, excessive aspirin ingestion, and anesthesia (Pagana et.al., 2022). The trace of Ketones in client's urine is likely because of illness and stress.