Medications

- **Aspirin (Ecotrin) 81mg PO Daily:** To prevent the client from developing blood clots causing TIA.
  Pharmacological class: Salicylate (Jones & Bartlett Learning, 2021)
  Therapeutic class: NSAID, antiplatelet, antipyretic, nonopioid analgesic (Jones & Bartlett Learning, 2021)
  Key Nursing assessment: Elderly clients are at higher risk for toxicity. Monitor salicylate levels in clients receiving long-term therapy. Ask about tinnitus. Expect aspirin therapy to be temporarily halted 5 to 7 days before elective surgery to reduce the risk of bleeding (Jones & Bartlett Learning, 2021).
- **Citalopram (Celexa) 10mg PO Daily:** To prevent the client from depression.
  Pharmacological class: Selective serotonin reuptake inhibitor (SSRI) (Jones & Bartlett Learning, 2021).
  Therapeutic class: Antidepressant (Jones & Bartlett Learning, 2021).
  Key Nursing assessment: Monitor clients for possible serotonin syndrome when dosage increases and which may include agitation, chills, confusion, diaphoresis, diarrhea, fever, hyperactive reflexes, poor coordination, restlessness, shaking, talking or acting with uncontrolled excitement, tremor, and twitching (Jones & Bartlett Learning, 2021).
- **Clopidogrel (Plavix) 75mg PO Daily:** To reduce the client's risk for CVA & MI with established PAD or history of MI or CVA.
  Pharmacological class: $P2Y_{12}$ platelet inhibitor (Jones & Bartlett Learning, 2021).
  Therapeutic class: Platelet aggregation inhibitor (Jones & Bartlett Learning, 2021).
  Key Nursing assessment: Obtain blood cell count whenever signs and symptoms suggest a hematologic problem. Monitor client who takes aspirin closely because of the increased risk of bleeding (Jones & Bartlett Learning, 2021).
- **Enoxaparin (Lovenox) 40mg SubQ Daily:** To prevent the client from developing blood clots causing TIA.
  Pharmacological class: Low-molecular-weight-heparin (LMWH) (Jones & Bartlett Learning, 2021).
  Therapeutic class: Anticoagulant (Jones & Bartlett Learning, 2021).
  Key Nursing assessment: Keep protamine sulfate nearby in case of accidental overdose. Check serum K level for elevation, especially in clients with renal impairment, and test stool for occult blood. Watch closely for bleeding. (Jones & Bartlett Learning, 2021).
- **Pantoprazole (Protonix) 40mg PO Daily:** To treat the client's GERD.
  Pharmacological class: Proton pump inhibitor (Jones & Bartlett Learning, 2021).
  Therapeutic class: Antiulcer (Jones & Bartlett Learning, 2021).
  Key Nursing assessment: Expect to monitor PT/INR during therapy if the client takes an oral anticoagulant (Jones & Bartlett Learning, 2021).
- **Hydralazine (Apresoline)10mg IV Q1 PRN:** To manage the client's hypertension.
  Pharmacological class: Vasodilator (Jones & Bartlett Learning, 2021).
  Therapeutic class: Antihypertensive (Jones & Bartlett Learning, 2021).
  Key Nursing assessment: Check blood pressure and pulse rate regularly. Monitor CBC during long-term treatment (Jones & Bartlett Learning, 2021).
- **Labetalol (Normodyne;Trandate) 10mg IV Q1 PRN:** To manage the client's hypertension.
  Pharmacological class: Noncardioselective beta-blocker/alpha blocker (Jones & Bartlett Learning, 2021).
  Therapeutic class: Antihypertensive (Jones & Bartlett Learning, 2021).
  Key Nursing assessment: Monitor blood glucose levels in a diabetic client because it may conceal symptoms of hypoglycemia. Do not stop abruptly after long-term therapy because it can cause angina, MI, or ventricular arrhythmias. Expect to taper dosage over 2 weeks while monitoring response (Jones & Bartlett Learning, 2021).

Lab Values/Diagnostics

LABORATORY:

Glucose: 145mg/dL ***Normal:*** 70-99mg/dL
Reason for abnormal: The client is diabetic and has a poor diet.
MPV: 7.9FL ***Normal:*** 8.0-12.6FL
Reason for abnormal: The client might have an infection.
HDL: 36mg/dL ***Normal:*** >60mg/dL
Reason for abnormal: The client has hyperlipidemia.
Triglyceride: 165mg/dL ***Normal:*** <150mg/dL
Reason for abnormal: The client has hyperlipidemia.

DIAGNOSTICS:

CT Abdomen
1. Gr 1-2 anterolisthesis of L5 on S1 due to bilateral pars defect.
2. Fecal retention/constipation.
3. Colonic diverticulosis without diverticulitis.
   Reason: The client has a GERD and a BPH diagnosis.

CT Head/Brain
1. No acute hemispheric acute infarction or mass effect.
2. Mild diffuse cerebral atrophy.
   Reason: The client had a suspected stroke, HTN, and ASHD diagnosis.

CT Lumbar Spine
1. No acute traumatic findings.
2. There are bilateral pars defects at L5 with Gr 1 anterolisthesis of L5 on S1.
   Reason: The client has chronic low back pain and sciatica.

MRI Brain without Contrast
1. Subacute infarction noted post right basal ganglion.
2. Few bright signals were noted in subcortical white matter in T2 & Flair images.
3. MRI Brain with contrast is recommended.
   Reason: The client had a suspected stroke.

Demographic Data

Date of Admission: 02/05/2023, Sunday
Admission Diagnosis/Chief Complaint: Acute Lacunar Stroke / Numbness of Left Leg
Initials: MW
Age: 73 years old
Gender: Male
Race/Ethnicity: Non-Hispanic White Caucasian
Allergies: No Known Allergies
Code Status: Full Code
Height in cm: 170.2 cm
Weight in kg: 110.2 kg
Psychosocial Developmental Stage: Integrity vs. Despair
Cognitive Developmental Stage: The Formal Operational Stage
Braden Score: 22
Morse Fall Score: 45 High Risk
Infection Control Precautions: Standard Precaution

Admission History

A 73-year-old Caucasian male presented to the OSF Emergency Department on 02/05/2023, Sunday, after falling due to numbness in the left leg. The client stated it started four days ago, ventrally and laterally on his left leg. The client said it is worst while sitting down but gets relieved while standing and walking. The client also stated that he could not lift his left leg while walking, thus dragging it. The client also added that he felt numbness on his left palmar hand after he used it to protect him from falling. He mentioned he experienced no headaches, visual disturbances, speech changes, GI problems, or pain radiating from the proximal side of the left arm. The client tried to walk it off but fell. The client's wife called 911 as the client had a history of Transient Ischemic Attack (TIA) in 2019 that affected his right upper extremities and caused slurred speech. The client was brought to OSF Sacred Heart Medical Center for further evaluation.

Medical History

Previous Medical History:
TIA right side upper extremity weakness with slurred speech, Atherosclerotic Heart Disease (ASHD), Benign Prostatic Hyperplasia (BPH), Gastroesophageal Reflux Disease (GERD), Hypertension (HTN), Chronic low back pain and Sciatica

Prior Hospitalizations:
TIA (2019), Covid 19 & Lactic Acidosis (2022), Acute Lacunar Stroke (Present)

Previous Surgical History:
Cardiac Catheterization, Cholecystectomy, Laparoscopic Inguinal Hernia Repair

Social History:
Smoking: Denies smoking; *Alcohol:* Drinks occasionally; *Drugs:* Denies using drugs; *other substances:* Denies using any substances

Pathophysiology

Disease process: A stroke is a specific type of brain injury caused by ischemia of brain tissue or hemorrhage of a cerebral blood vessel. It is a clinical syndrome whereby a disruption in cerebral circulation triggers abrupt neurological deficits that are permanent (Capriotti, 2020). In the client's case, Transient Ischemic Attack (TIA) was the cause of the stroke. Some people call this a mini-stroke. A TIA is a disrupted cerebral circulation with reversible neurological deficits lasting less than 24 hours. In a TIA, the body naturally dissolves the clot that caused the ischemia, circulation returns, and no permanent neurological injury exists. However, TIA is often a warning sign of future stroke (Capriotti, 2020). TIAs are caused by an embolus that suddenly dislodges in an arteriosclerotic arterial vessel and causes arterial occlusion in the brain. This leads to tissue anoxia and clinical presentation similar to a stroke (Caprioti, 2020). Once the vessels are occluded, it causes small areas of ischemic brain damage that often cause no major symptoms. Small areas in the brain that endure ischemia from occluded tiny blood vessels are called lacunar infarcts. These infarcts in the brain are often associated with hypertension, smoking, and uncontrolled diabetes (Capriotti, 2020). Two of these are present in the client, hypertension and uncontrolled diabetes.
S/S of disease: Stroke manifestations often occur as neurological deficits on one side of the body. Common stroke symptoms include hemiparesis or the weakness of extremities on one side of the body (Capriotti, 2020). In the client's case, the left lower extremity. Other symptoms the client did not manifest are hemiplegia, loss of sensation in an extremity on one side of the body, slurred speech, and facial droop with weakness. Some clients would have disorientation, confusion, and drowsiness, which can become a stupor or coma (Capriotti, 2020).
Method of Diagnosis: Any client with a sudden change in neurological function should be assessed for a TIA or stroke (Capriotti, 2020). Client assessment needs to include neurological and cardiovascular examinations. This includes auscultation of carotid arteries, blood pressure in both arms, and ophthalmoscopic retina examination for changes associated with hypertension (Capriotti, 2020). Diagnostic testing must include electrocardiography, chest x-ray, blood work, and brain imaging studies (Capriotti, 2020). Computerized tomography (CT) scans without contrast are preferred during the acute phase of the stroke. The provider ordered for the client three CT scans of the brain, abdomen, and lumbar. CT scans are used to rapidly identify or exclude hemorrhage as the etiology of the stroke (Capriotti, 2020). Another diagnostic test the provider ordered is the Magnetic Resonance Imaging (MRI) of the brain. The MRI can determine the presence of a clot or an aneurysm (Capriotti, 2020). And based on the conversation with the client, the provider also ordered a Transcranial doppler for the client. This noninvasive ultrasound procedure can be used on some regions of the skull (Capriotti, 2020). As of writing, the results of this test have not come back and have not been recorded in the client's charts. Laboratory blood draws are also essential in the diagnosis of stroke. In the case of the client, a chemistry lipid panel, PTT, PT/INR, blood glucose, and complete blood count were ordered. The lab results yielded several abnormal values that may have contributed to the client's condition. In this case, the elevated glucose, MPV, and triglycerides with the low HDL.
Treatment of disease: Treatment begins with stabilization to prevent further brain injury (Capriotti, 2020). Treatment for acute ischemic stroke utilizes IV thrombolysis. This process dissolves the clot blocking arterial blood flow and allowing for reperfusion (Capriotti, 2020). Thrombolytic therapy must be administered within 3 – 4.5 hours of symptom onset (Capriotti, 2020). The thrombolytic agent is a recombinant tissue-type plasminogen activator (rTPA) Alteplase. In the case of the client, further evaluation is needed before thrombolytic therapy can be administered. The client is given aspirin (Ecotrin) and enoxaparin (Lovenox) to decrease platelet aggregation and avoid further clot formation. Furthermore, to control the client's hypertension and hyperlipidemia, the providers added clopidogrel (Plavix), hydralazine (Apresoline), and labetalol (Normodyne, Trandate) to the client's regimen.

Active Orders

- ***Code Status:*** CPR Full Code Treatment as client's wishes.
- ***Diet/Nutrition:*** Cardiac Diet due to client's cardiac diagnosis.
- ***Consult to case management***: for resources & needs assessment secondary to diagnosis of the client's new stroke.
- ***Lab***: CBC w/ differential as ordered to monitor the client's blood levels while on multiple antiplatelets & anticoagulants.
- ***Imaging***: Adult Trans Thoracic Echo 2D Complete w/ Contrast to assess further the client's TIA.
- ***Therapy***: PT & OT evaluate & treat the client's suspected stroke.
- ***Other orders***: Cardiac monitor, telemetry, & neuro notification for the client's TIA.
- ***Insert/maintain IV***: to maintain the client's electrolytes & possible IV medications.
- ***Neuro check:*** Q4hrs to assess the client's LOC.
- ***Notify physician:*** symptomatic bradycardia, ventricular arrhythmias, and O_2 saturation of <94% to ensure the client's tissue oxygenation and perfusion.
- ***Obtain a Modified Rankin Score:*** before new stroke symptoms & at discharge to establish a baseline on the client's condition.
- ***PT education:*** provide stroke education material to the client & family to prevent the risk of another future TIA.
- ***PHQ2 Depression Screen:*** ensure that the client's current condition does not cause depression.
- ***Sequential Compression Device:*** ensure no DVT develops while the client is hospitalized.
- ***Pulse Oximetry:*** to maintain the client's oxygenation.
- ***RN Aspiration Risk:*** swallowing precaution is active because of the client's stroke diagnosis.
- ***Accuchecks Q4 Routine:*** to monitor the client's blood sugar as it was high upon admission.
- ***Telemetry monitoring:*** to monitor the client's cardiac rhythm due to the client's history of cardiac diagnosis.
- ***Vital Signs Q4 Routine:*** to closely monitor the client's health status.

Physical Exam/Assessment

General: The client is alert and oriented to person, place, time, and situation. Appears groomed and appropriate for his situation and in no acute distress.

Integument: Skin color is light and usual for Caucasians. Skin is warm and dry upon palpation. The client has an abrasion on the left elbow from the fall related to weakness and numbness of the left lower extremity. The client has regular quantity, distribution, and texture of body hair. Nails on both upper and lower extremities without clubbing or cyanosis. Skin turgor has normal elasticity. Capillary refills less than 3 seconds on both fingers and toes bilaterally.

HEENT: Head: Symmetrical and round with no lumps, lesions, rashes, bruises, or deformities. The hair is thin, grey, and white. ***Neck:*** Symmetrical, trachea is midline without deviation, the thyroid gland is non-palpable, and no noted nodules. Bilateral carotid pulses are palpable 2+. No lymphadenopathy in the head or neck was noted. ***Eyes:*** Bilateral scleras are white, bilateral corneas are clear, bilateral conjunctivas are light pink, with no visible drainage from both eyes, and bilateral eyelids are moist and pink without lesions or discharge. PERRLA is intact bilaterally. EOM intact bilaterally. The client is wearing eyeglasses. ***Ears:*** Bilateral auricles show no visible lesions, lumps, or deformities. ***Mouth/Throat:*** Pink and moist gums. The dentition is white, smooth, and complete, with no dentures. ***Nose:*** The nose is midline with no signs of lumps, rashes, lesions, or deformities.

Cardiovascular: Clear S1 and S2 without murmurs, gallops, or rubs. Normal cardiac rate and rhythm. Upper and lower extremities peripheral pulses 3+ bilaterally. Capillary refills less than 3 seconds on both fingers and toes bilaterally. No edema on both upper and lower extremities.

Respiratory: Normal rate and pattern of respirations. Respirations are symmetrical and non-labored. Lung sounds are clear throughout anterior and posterior bilaterally, with no wheezes, crackles, or rhonchi noted.

Genitourinary: The client has BPH without lower urinary tract symptoms, as evidenced by the previous diagnosis.

Gastrointestinal: Bowel sounds were normoactive upon auscultation on all four abdomen quadrants. Skin shows no rashes, lumps, lesions, or deformities. Skin is dry, warm, soft, and non-tender upon palpation. No organomegaly was noted on all quadrants. The last BM was on 2/5/2023, Sunday, as the client says.

Musculoskeletal: The client MAEW. All extremities have the full range of motion (ROM). Hand grips demonstrate normal strength 5/5. Right pedal push and pull are normal strength 5/5. The left lower extremity is numbness and weakness, muscle strength left leg is 3/5, left palmar has tingling and numbness related to the suspected stroke diagnosis.

Neurological: The client is alert and oriented to person, place, time, and situation. The client's cognition is normal and intact. The client's speech is clear. PERRLA. Left lower extremity numbness and weakness, muscle strength left leg 3/5 related to the suspected stroke diagnosis.

Most recent VS (include date/time and highlight if abnormal):

1121	***T:***	98.3, Temporal	***BP:***	146/92	***PR:***	82	***RR:***	18	***SpO_2:***	94, Room Air	***POC Glu:*** 103
1510	***T:***	98.3, Temporal	***BP:***	150/90	***PR:***	80	***RR:***	18	***SpO_2:***	94, Room Air	***POC Glu:*** 122

Elevated BP is due to the client's hypertension, and the client's diabetes may cause high POC Glucose results.

Pain and pain scale used:

1121 ***Pain:*** 0 ***Scale used:*** Numerical scale of 0-10, where 0 is no pain & 10 is the worst pain.
1510 ***Pain:*** 0 ***Scale used:*** Numerical scale of 0-10, where 0 is no pain & 10 is the worst pain.

Nursing Diagnosis 1 Risk for peripheral neurovascular dysfunction related to stroke as evidenced by the client's chief complaint of numbness of the left lower extremity and the diagnostic result of the Magnetic Resonance Imaging (MRI) of the brain without Contrast.	***Nursing Diagnosis 2*** Risk for fall-related to impaired mobility as evidenced by the client's lower extremity weakness and the high-risk fall score of 45.	***Nursing Diagnosis 3*** Risk for impaired health management related to hyperlipidemia and hypertension as evidenced by elevated triglyceride (165mg/dL), low high-density lipoprotein (HDL=36mg/dL), and elevated blood pressure readings (150/90).
Rationale A stroke causes diminished and insufficient blood, nutrition, and oxygen supply to the brain at the cellular level, which could potentially cause devastating effects on the client's extremities if left untreated.	***Rationale*** Alteration in mobility caused by a stroke may be a temporary or more permanent problem. Most disease and rehabilitative states involve some degree of immobility.	***Rationale*** With the client's medical history of two strokes in less than five years, it is crucial to ensure that health management is of the utmost significance in providing positive health maintenance.
Interventions ***Intervention 1:*** Monitor the client's coagulation labs, particularly the PTT, PT/INR, and platelets, while receiving thrombolytics to dissolve clots in the cerebral vessels (Gulanick & Myers, 2021). ***Intervention 2:*** Assess the client's neurologic status frequently to determine the effects of the stroke and identify life-threatening complications. Check for optimal peripheral tissue perfusion as evidenced by the client's strong, palpable peripheral pulses, absence of pain, warm and dry extremities, and adequate capillary refills (Gulanick & Myers, 2021).	***Interventions*** ***Intervention 1:*** Assess the client's ability to move, change position, transfer, and walk, and perform ROM to all joints for fine and gross muscle movements. Encourage the client to use nonskid socks while admitted. Encourage the client to use the call light if the client wants to ambulate (Gulanick & Myers, 2021). ***Intervention 2:*** Collaborate with members of the interprofessional health team (particularly PT and OT) to evaluate the need for ambulatory aids (Gulanick & Myers, 2021).	***Interventions*** ***Intervention 1:*** Assess the client's health values and beliefs. Also, assess adherence patterns and the risk factors that may negatively affect adherence to the regimen (Gulanick & Myers, 2021). ***Intervention 2:*** Instruct the client to self-monitor blood pressure and keep track of any changes in a journal. Also, instruct the client to get regular blood lipid panel lab work every six months while on lipidemia medications. Educate the client to keep scheduled appointments, maintain a healthy diet and lifestyle changes, and strictly follow treatment regimens (Gulanick & Myers, 2021).
Evaluation of Interventions The client's laboratory results should indicate therapeutic levels and will be further evaluated to switch to LMWH to avoid future TIAs and ensure normal peripheral perfusion. The client's frequent neurologic status checks will ensure normal neurologic function without signs of deterioration while the client is admitted.	***Evaluation of Interventions*** The client will be able to demonstrate how to ambulate and perform ADLs using ambulatory aids before discharge. The client will also perform active and passive ROM exercises in all extremities several times daily to increase functional activities as strength improves and the client is medically stable before discharge.	***Evaluation of Interventions*** The client will have a medical follow-up with the primary provider six months after discharge from the hospital. The client should also consult with a cardiologist and a neurologist. The client should have a blood lipid panel lab work to ensure adherence to the regimen by lowering the current elevated lipid values. This is to confirm the regimen's effectiveness in controlling the client's hyperlipidemia and hypoglycemia.

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