Medications

Ascorbic acid – 500mg – PO – BID: Ascorbic acid is a nutritive agent and a Vitamin C supplement that the client is taking to supplement her diet and nutritional intake (Jones, 2021). While taking this drug it is important to watch for signs and symptoms of Vitamin C overdose in the body systems. **Enoxaparin – 40mg – SQ – Daily:** Enoxaparin is a low-molecular-weight heparin and an anticoagulant the client is taking as a prophylactic measure to reduce the risk of blood clots (Jones, 2021). The key nursing assessments for enoxaparin would be clotting factors and to ensure there are no active bleeds anywhere in the body. **Ertapenem – 1,000mg – IV piggyback – Daily:** Ertapenem is a carbapenem and an antibiotic that the client is taking to treat the ESBL associated urinary tract infection (Jones, 2021). Before administering ertapenem it is important to make sure that the drug is effective on the organism by examining the bacteria's culture and sensitivity results. **Levetiracetam – 500mg – IV piggyback – Q12H:** Levetiracetam is a pyrrolidine derivative and an anticonvulsant that the client is taking to prevent seizure activity unless indicated for testing (Jones, 2021). The key assessments for levetiracetam are assessing vital signs and monitoring for anaphylaxis. **Acetaminophen – 1,000mg – IV piggyback – Q6H PRN:** Acetaminophen is a Nonsalicylate and a nonopioid analgesic that the client is taking when she has mild to moderate pain or discomfort (Jones, 2021). While taking this medication it is important to monitor renal function and liver function tests. **Lorazepam – 1mg – IV push – Once:** Lorazepam is a benzodiazepine and an anxiolytic that the client is taking to treat status epilepticus during an active seizure episode (Jones, 2021). It is important to monitor the respiratory status of the client taking this drug because this drug can cause respiratory depression.

Lab Values/Diagnostics

The client has had several lab draws performed over the course of her stay, and her lab values are a result of her diagnosis or other chronic health conditions. The alkaline phosphate level was 113 units/L when the normal value is 34 to 104 units/L. This level is low due to the client's past diagnosis of osteoporosis (Kee, 2018). The client's creatinine level has been 0.59 md/dL, 0.49 mg/dL, 0.46 mg/dL, and 0.50 mg/dL when the normal range is 0.60 to 1.20 mg/dL. This level is low and could be a result of the client's low body weight, low muscle mass, malnutrition or could indicate a renal disease or problem (Kee, 2018). The client's sodium level was 135 mmol/L on the lab draw this morning when the normal range is 136 to 145 mmol/L. This low level could indicate overhydration with the maintenance fluids or be another indicator of renal/kidney issues (Kee, 2018). The red blood cells were $3.7x10^4$/mcL and $3.72x10^4$/mcL when the normal range is 3.8 to 5.41 $x10^4$/mcL. This value is low to indicate possible anemia (Kee, 2018). The client's hemoglobin was 11.1 g/dL and 11 g/dL when the normal range is 11.3 to 15.2 g/dL. This level is low to indicate possible anemia as well or a possible bleed (Kee, 2018). The hematocrit was 31.5%, 31.7%, and 32.5% when the normal range is 33.2% to 45.3%. This level is low to indicate possible anemia as well or a possible bleed (Kee, 2018). The client's platelets were 507 K/mcL when the normal range is 149 – 393 K/mcL. This value is elevated and could indicate anemia or could be a result of infection such as the current urinary tract infection (Kee, 2018). White blood cells were 12.4 K/mcL when the normal range is 4.0 to 11.7 K/mcL. This value is elevated due to the client's infection in her urinary tract (Kee, 2018). There was also a urinalysis that resulted in with a white blood cell count of 21/HPF when the normal value is ≤5/HPF. This is a result of the infection in the urinary tract. Due to the urinary tract infection, there was a culture that was grown and resulted in ESBL bacteria growing which shows the causative agent for the infection of the urinary tract. An x-ray of the chest and a CT of the head and brain without contrast were performed due to the client's altered mental status and showed no acute cardiopulmonary or intracranial abnormalities. An MRI of the brain without contrast was also performed due to the client's altered mental status and showed senescent changes of the brain including mild cortical atrophy, moderate supratentorial white matter flair, and severe symmetric atrophy of mesial temporal lobes. These findings are consistent with the client's deterioration associated with her age and conditions (Kee, 2018). The client also had orders for routine EKGs due to past cardiovascular conditions and the EHG showed lengthening of the QT interval until 03/24/2023 after they had discontinued Zofran administration. The EKG also discovered a septal infarct that had occurred on or before 03/26 but was not witnessed due to no cardiac monitoring. These changes are associated with adverse effects of Zofran and the septal infarct could be a result of the cardiac comorbidities in the client's medical history (Kee, 2018).

Demographic Data

Date of Admission: 03/23/2023
Admission Diagnosis/Chief Complaint: New onset seizure (witnessed Grand Mal Seizure)
Age: 71 years
Gender: Female
Race/Ethnicity: Caucasian
Allergies: Latex
Code Status: Full code
Height in cm: 142 cm
Weight in kg: 53.9 kg
Psychosocial Developmental Stage: Despair stage (Orenstein & Lewis, 2021)
Cognitive Developmental Stage: Concrete operational stage (Babakr et al., 2019)
Braden Score: 11
Morse Fall Score: 50
Infection Control Precautions: Contact precautions d/t ESBL infection and history of MRSA

Admission History

The client arrived to the emergency room by ambulance after a witnessed grand mal seizure. The client's primary care provider was visiting the client in her facility when she began to seize during the assessment. When the client arrived to the emergency room she was still in the post-ictal phase of the seizure therefore further assessments needed to be made at a later time. Due to the client's state in the emergency room, no immediate treatments were given for the seizure. The client was admitted for further testing and evaluation with a diagnosis of a new onset seizure on 03/23/2023.

Medical History

Previous Medical History: This client has a past medical history of abnormal EKG, acute cholecystitis, adult failure to thrive, coronary artery disease, cataracts, *Clostridium difficile*, falls, hyperlipidemia, hypertensive cardiovascular disease, hypoxia, impaired skin integrity, left bundle branch block, *methicillin-resistant staphylococcus aureus*, obsessive compulsive disorder, osteoporosis, prolonged QT interval, and severe anxiety.

Prior Hospitalizations: This client was admitted on 02/06/2023 with complaints of a fever, low blood pressure, and tachypnea.

Previous Surgical History: This client has a past surgical history of incision and drainage-debridement of back and chest, aneurysm of spinal artery, and bilateral cataracts.

Social History: The client denies any past or current alcohol, smoking, or drug use.

Pathophysiology

Disease process: Grand mal seizures, also known as convulsive status epilepticus, is a neurological emergency that can result in several neurological and cognitive deficits (Fernandez, Goodkin, & Scott, 2019). Status epilepticus results from many body physiological changes such as blood pressure, heart rate, respiratory functions, electrolyte concentrations, glycemia, and body temperature. Like the many changes, many causative agents bring on status epilepticus or seizures. Seizures can be caused by something as small as electrolyte imbalances or something as big as an aneurysm in the brain. Many people with seizures go an extended amount of time without knowing the cause; some clients even go their whole lives without reason for these episodes. Studies have been performed to determine the causes and exact pathophysiology of these status epileptic episodes, and there are a few constant changes. Plasma epinephrine and norepinephrine were elevated within 30 minutes of the end of the seizure and reached a level as high as 40 times the average amount (Fernandez, Goodkin, & Scott, 2019). This rise in epinephrine and norepinephrine causes vasoconstrictor effects and increases the risk of cardiac arrhythmia. In a study performed where seizures were induced, it was found that heart rate and blood pressure rose rapidly after the onset of the seizure, which increased the cerebrospinal fluid pressure and blood flow to the brain, which could explain the neurological involvement in the seizure (Fernandez, Goodkin, & Scott, 2019). The type of seizure and treatment will depend on discovering the trigger for the client's status epilepticus. Overall, seizures result from an electrical disturbance in the nerve cells in the brain that emit abnormal and reoccurring discharges (Hinkle, Cheever, & Overbaugh, **2022).**
S/S of disease: The signs and symptoms of a seizure can range from just a blank stare in an absence seizure to an overall body convulsing episode in a grand mal seizure (Hinkle, Cheever, & Overbaugh, 2022). The location of the electrical impulse determines what actions occur and what body parts are affected. In general, grand mal seizures include fainting, loss of consciousness, convulsing, rigid muscles, and repeated movements, and can result in urinary/bowel incontinence or even vomiting in specific scenarios (Hinkle, Cheever, & Overbaugh, 2022). This client was described as having jerky movements and needing to be lowered to the ground and moved to her side to prevent aspiration of fluids or stomach contents.
Method of Diagnosis: For diagnostic purposes, testing primarily aims to uncover the causes of the seizures and reduce their frequency/severity (Hinkle, Cheever, & Overbaugh, 2022). A combination of developmental history, illnesses, head injuries, past medical history, neurological examinations, physical examinations, and some diagnostic testing is used to diagnose and determine a cause. The MRI detects structural lesions or other focal abnormalities that could cause seizures. This client had an MRI performed, showing some senescent structural changes to her brain but nothing that would definitively cause a seizure. Another diagnostic test is the EEG, where they attempt to induce a seizure while electrical activity is being monitored in the brain for further analysis (Hinkle, Cheever, & Overbaugh, 2022). This client was scheduled for an EEG during the clinical, but it was canceled due to the administration of levetiracetam at 0500, and no staff was available to run the test.
Treatment of disease: Treatment of seizures is based solely on discovering what is causing them. Clients with epilepsy may be triggered by flashing lights; therefore, part of their treatment regimen is avoiding situations in which these lights would occur. This client is taking anticonvulsant medications, such as levetiracetam, to prevent a reoccurrence of a seizure as a maintenance medication. Rescue medications, such as the benzodiazepine class that can be administered during a seizure to help stop or slow the effects and calm the body systems (Fernandez, Goodkin, & Scott, 2019). Education on what to do during a seizure is essential in seizure care to promote safety during the status epilepticus stage. Making sure to lower the client to the ground, lay them on their side, remove items from immediate reach, remove restrictive clothing, and monitor airway patency are vital measures to take when one is having a seizure (Hinkle, Cheever, & Overbaugh, 2022).

Active Orders

The client is on seizure precautions with neurological checks every six hours in order to keep the client safe and identify any neurological damage in the case that another seizure occurs during her stay. She is also on an IDDSI level 4 diet with pureed foods and honey-thickened liquids due to her difficulty swallowing solids and thin liquids. The client is currently on contact precautions due to her current urinary tract infection with ESBL and her history of MRSA. During her hospital stay the client is also on vital checks every four hours and daily weights to monitor for changes in the body including fluid balances. With the client's history of prolonged QT interval, she has an order for routine EKGs to monitor for rhythm changes. The client is a turn assist every two hours due to her inability to turn herself frequently. The provider ordered an EEG for 03/23/2023 but it was canceled due to lack of staff.

Physical Exam/Assessment

General: The client was alert and oriented x 3 to person, place, and situation but not time. She was alert and responsive to stimuli with no signs of distress. The client's overall appearance was contractured, thin, and frail although she was clean, dry, and adequately clothed.

Integument: The client's skin was warm and dry to the touch. The color was pale, but appropriate for ethnicity with no signs of cyanosis, ecchymosis, mottled, jaundice, erythema, or pallor present upon examination. The client's skin turgor was loose but intact with no drains, incisions, wounds, or dressings noted. There was a bandage around the left hand to hold the IV in place and keep in from being pulled out.

HEENT: The client's head is symmetrical of the skull and face. The trachea is midline, and the thyroid glands were palpable with rising noted upon swallowing. Her neck structure was symmetrical and midline. The client's eyes were evenly spaced and symmetrical upon gross examination. She has had cataracts in the past but no visual abnormalities were noted. Her pupils were round and reactive to light, PERRLA was intact. All extraocular movements were intact upon assessment. The ears were free from hair, drainage, or other abnormalities upon gross examination. No hearing issues were expressed by the client upon questioning. The client has removable dentures that are not with her during the current admission with no natural teeth left in the mouth. Her oral mucosa was pink and moist upon examination with no ulcers or color changes noted. The client's nares were patent with no drainage, epistaxis, or edema observed.

Cardiovascular: The client's heart sounds were auscultated on the anterior side due the client's inability to sit up unsupported. S1 and S2 were identified with a regular rate and rhythm of sinus rhythm at 65 beats per minute. The client's peripheral pulses were 2+ in both upper and lower extremities. Capillary refill time was less than 3 seconds. The client was not on telemetry, although she was receiving regularly scheduled EKGs. There was no edema present in upper and lower extremities or in any location on the body during assessment. The client did not have an order for SCD's or Ted hose, and did not report any tingling or numbness upon questioning.

Respiratory: The client's breath sounds were auscultated on the anterior and lateral locations due to the client's inability to sit up unsupported or roll efficiently. The lung sounds were clear in all lobes and unlabored with no accessory muscle use present. The respiratory pattern was regular and even with no signs of respiratory distress at a rate of 17 breaths per minute. The client's lung aeration was equal on both inspiration and expiration upon gross examination. The client denied having a cough or any abnormal sputum production.

Genitourinary: The client's urine was unable to be assessed due to the client being incontinent of bowel and urine. She denied any pain or abnormalities with her urinary elimination pattern. The client had 1 large incontinent void of urine during the clinical. While cleaning the client up, her genital are was assessed and there was no edema, erythema, or other abnormalities noted. The client does not have a urinary catheter and denied any reproductive or urinary problems during assessment.

Gastrointestinal: The client's abdomen was inspected and no distention, incisions, scars, drains, or wounds were present. Her bowel sounds were auscultated and deemed to be active in all four quadrants. Upon palpation, the client's abdomen was soft and non-tender to light and deep palpation. The client's last documented bowel movement was on 03/24/2023 and the client could not remember when her last bowel movement was. Her diet during her stay is a level 4 IDDSI pureed and honey-thickened liquid diet which is the same diet that she was on previously at the nursing home. The client is 142 cm tall and weighs 53.9 kg. The client denies any current or recent nausea, vomiting, or stomach abnormalities. She does not have any ostomies, nasogastric tubes, feeding tubes, or PEG tubes.

Musculoskeletal: The client's active and passive range of motion was extremely limited due to patient being unable to move. The strength in the upper extremities was 3 and the strength in the lower extremities was 2. The lower extremities were able to move, but not bale to support any resistance and needed assistance to be moved. The upper extremities were able to be moved slightly, and the client was bale to perform mild resistance exercises with average weakness noted. The strength was equal bilaterally in the upper and lower extremities, but the lower extremities were remarkably weaker than the upper extremities. There was no joint swelling noted, and the client uses a wheelchair at the nursing home but is currently on bedrest unless working with physical therapy while at the hospital. She requires maximum assistance for ADLs and would need maximum support to stand, walk, or use equipment. The client's Morse Fall Score is a 50 which makes her a fall risk.

Neurological: The client is alert and oriented x 3 to person, place, and situation but not time. The client has impaired cognition related to her failure to thrive as an adult. She can follow commands to the best of her ability, answer questions, but her memory and communication skills are very limited. Her long term memory is intact, but the client struggles with short term memory and with recognizing the current timeline. The client is nit able to move all extremities well and needs assistance to move and sometimes roll in the bed. PERRLA is intact and the client's speech is quiet and garbled. Her strength is equal when comparing left and right sides of each extremity, but not equal with the lower extremities being weaker than the upper extremities. The client was awake and able to answer questions to the best of her ability and was responsive to physical and verbal stimuli.

Most recent VS (include date/time and highlight if abnormal): The client's morning vital signs were obtained at 07:35 and were a temperature of 36.6 C, heart rate of 68 beats per minute, respirations of 18 breaths per minute, oxygen saturation of 94% on room air and a blood pressure of 160/94 mmHg.

Pain and pain scale used: The client denied any physical pain during the clinical, and scored a 0 on the FLACC scale in case the client was unable to communicate pain to the staff.

Nursing Diagnosis 1	Nursing Diagnosis 2	Nursing Diagnosis 3
Risk for ineffective airway clearance related to status epilepticus as evidenced by client verbalizing she is “scared that she won’t be able to breathe again”	Deficient knowledge related to cognitive impairment as evidenced by client stating that she is “scared to have another seizure and die”	Imbalanced nutrition: Less than body requirements related to low nutritional input as evidenced by client’s low weight, low muscle mass, frail appearance and low creatinine levels
Rationale This diagnosis was chosen first because the patient is already a high aspiration risk and verbalized fear of not being able to breathe like she was not able to in the first seizure	**Rationale** This diagnosis was chosen second because the entire clinical time the client continually expressed concern about having another seizure and was unsure what would happen to her during one.	**Rationale** This diagnosis was chosen third because although it does not take priority for the client’s health and safety, the client is showing signs of pretty severe malnutrition
Interventions **Intervention 1:** Encourage the client do perform breathing exercises to strengthen her lungs. **Intervention 2:** Reassure the client that if she has another seizure she should be turned on her side to prevent aspiration.	**Interventions** **Intervention 1:** Educate the patient on the disease process of seizures. **Intervention 2:** Provide emotional support for the client about her condition.	**Interventions** **Intervention 1:** Educate the client on the importance of nutritional food choices and eating her meals **Intervention 2:** Assist the client in making food choices that will promote appetite and provide nutrients
Evaluation of Interventions The client understood the teaching efforts and verbalized understanding of active seizure actions to prevent aspiration. Goals were met.	**Evaluation of Interventions** The client verbalized understanding of the teaching about the disease process and nursing interventions during a seizure. The client was unable to tach back to the student. Goals partially met.	**Evaluation of Interventions** The client verbalized understanding of the teaching on the importance of proper nutrition for the body. The client did not want to participate in making food choices for her lunch. Goals partially met.

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