Stroke – Pathophysiology Case Study

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The topic I have chosen for this assignment is based on my experience as a neuro-telemetry registered nurse on a stroke unit. Strokes present themselves in different scenarios which makes it difficult for nurses to identify. Because of the generalization of how strokes present themselves, I thought it would be a great exercise to go through a case study that I personally go through on a day-to-day basis at my unit. The case study will be based on a recent patient I had that is not any different from all other patients I have had in the past.

The patient, R.A. is an obese 65-year-old African American male who presented to the Emergency Department with a chief complaint of dizziness and left-sided weakness. The patient describes that his left upper extremity and left lower extremity feel numb and have a tingling sensation. He also cannot move both his left upper and lower extremities R.A. has a medical history of hypertension, dyslipidemia, hypercholesteremia, atrial fibrillation, and a BMI of 35. The patient stated he stopped taking Xarelto a month ago. The patient stated, "My heart felt better so I stopped taking the medication." MRI with contrast shows a blood clot from the right main carotid artery in the brain. From what is obtained from the MRI, it is already identified as an ischemic stroke by the description of a blood clot.

A stroke is a damage to the brain from the interruption of its blood supply. In this case, the signs and symptoms are caused by an ischemic stroke. An ischemic stroke could either be caused by a thrombotic stroke or an embolic stroke. The difference between a thrombotic versus an embolic stroke is a thrombotic stroke happens when a blood clot forms in an artery that leads to the brain. An embolic stroke is when a clot that formed elsewhere in the body breaks loose and travels to the brain. A possible underlying cause of the blood clot is a disease process called Atherosclerosis. Atherosclerosis often forms blood clots in arteries that have been damaged by the build-up of plaque

The signs and symptoms that are identified from R.A. are left-sided deficits, left upper and lower extremity numbness and tingling, inability to move those extremities, and dizziness. As was shown in a previous presentation, the acronym "BEFAST" is the best way to identify acute strokes. The health problems identified by R.A. that may contribute to his diagnosis are hypertension, dyslipidemia, hypercholesteremia, atrial fibrillation, obesity, and the interruption of halting blood thinners such as his Xarelto.

The treatment that we would expect to be given within the first hour would be an initial treatment of an IV injection of recombinant tissue plasminogen activator (TPA). "In the case of ischemic stroke, the most effective treatment for saving brain tissue is recanalization of the plugged vessel using thrombolytic therapy" (Szelenberg et al., 2020). It can be given within the first three hours after stroke symptoms occur which rapidly restores blood flow by dissolving the blood clot. Other interventions may be required after a stroke. After a stroke, spontaneous recovery is not usually a complete recovery. Rehabilitation is one of the most important steps in the care of a stroke patient. "The following common movement-focused poststroke interventions have moderate evidence of effectiveness: cardiorespiratory training, therapeutic exercise, task-oriented training (task-specific training), CIMT, mental practice, and mirror therapy" (Lin & Dionne 2018). Other post-stroke treatments may include modern rehabilitation, cardiorespiratory training, aerobic exercises, and physical therapy.

One nursing intervention that is commonly seen in the stroke unit setting would be blood pressure management. "BP variability in the first 24 hours is independently associated with increasing neurologic deterioration and an increase in intracranial pressure (ICP) that can lead to secondary brain injury" (Thomas & Amatangelo 2019). Closely monitoring blood pressure will help identify early signs of secondary brain injury. Another intervention that nurses may do is

cardiac monitoring. "Cardiac arrhythmias and abnormal electrocardiograms (EKGs) are identified in 50% to 70% of all acute stroke patients" (Thomas & Amatangelo 2019). R.A.'s atrial fibrillation may have contributed to his ischemic stroke; it is pertinent to his diagnosis that the nurse should closely monitor any signification changes in his cardiac rhythm. Lastly, the most important and highest priority of the nursing interventions is airway and respiratory assessment. Lack of mobility may or even the development of dysphagia may worsen neurological function if the patient's airways are not protected. "Approximately half of all stroke patients with dysphagia will have an indication of aspiration and dysarthria. It is important to note that aspiration, like dysarthria, is a consequence of dysphagia and contributes to a 3-fold increase in mortality and length of stay, and a 6- to 7-fold increased risk of aspiration pneumonia" (Thomas & Amatangelo 2019). This intervention should be the nurse's main priority when initiating nursing interventions for a stroke patient.

After administration of TPA, the patient regained mobility of his left upper and lower extremities but has a limited range of motion. The numbness and tingling recovered after a 24-hour observation. Continuation of his hypertension and cholesterol medications as well as continuing his blood thinner (Xarelto) medication was educated upon discharge. The plan of care that we would expect the patient to do is to follow up with physical therapy, continue the medications that he is prescribed, and nurses should educate the patient on the importance of medications.

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