# NU606: Advanced Pathophysiology

## Week 9 Nervous System Case Study Assignment Worksheet

### Case Study 1

Mr. Q, age 64 years, developed a severe headache several hours ago that has not responded to acetaminophen, rest, cold packs, or NSAIDS. Now his speech is slurred, and his right arm and the right side of his face feel numb. His wife reports that he “looks funny,” and his face is “half dead.” He is very anxious and is transported to the hospital. Mr. Q has a history of smoking and arteriosclerosis, and there is family history of CVA and diabetes. Assessment at the hospital indicated weakness on the right side, including facial asymmetry and a blood pressure of 220/110 Hg mm. A CT scan showed damaged tissue on the left side of the brain, and an angiogram indicated narrowing of the carotid arteries and middle cerebral arteries, with occlusion of the left middle cerebral artery. It was determined that Mr. Q is likely experiencing a CVA.

**Case Study 1 Questions**

1. Describe the three causes of CVAs and the characteristic onset signs and symptoms associated with each. What do you think is most likely in this case?
2. What predisposing factors for CVA can you identify for Mr. Q?
3. Describe the pathological changes that caused the following initial signs and symptoms: slurred speech, right-sided weakness, facial asymmetry, hypertension.
4. Thinking about these pathological changes, discuss two interventions that can help correct the pathology and return Mr. Q to a more homeostatic state.

After admission and discussion about Mr. Q’s history, you find out that he has had several brief episodes of right-sided tingling and speech troubles over the last few months. The symptoms resolved on their own, though he is not sure how long it took. He never sought care for these, though his wife does report being concerned about them. She states that she was worried her husband had a brain tumor, but never thought about a “stroke.”

1. Based on his description of symptoms, what do you think Mr. Q was experiencing when he had the intermittent episodes of symptoms prior to today?
2. How do these episodes differ from a CVA? Discuss the cause of each type of episode and expected signs and symptoms.
3. If Mr. Q had a brain tumor, would his signs and symptoms have been different? Choose one location of a brain tumor and describe the focal and general signs you would expect as the tumor grows.
4. Mr. and Mrs. Q want to know how long it is going to take for him to get back to normal. How will you answer them? What factors might influence the degree of functional recovery he can expect to achieve?

### Case Study 2

Ms. J, a 19-year-old college student, has been living in a dormitory on campus. She began experiencing severe headaches, neck pain, and nuchal rigidity, along with irritability and nausea. She noticed that when lying with her hips flexed, she found it very hard to stretch out her legs. Within a day, her condition deteriorated. She experienced a tonic-clonic seizure while trying to get some fluid replacement drinks from the cafeteria. EMS was called and she was quickly admitted to the hospital. Tests revealed increased intracranial pressure, fever, and leukocytosis. Bacterial meningitis was suspected, and a lumbar puncture was scheduled. Her parents are traveling to be with her.

**Case Study 1 Questions**

1. Describe the pathophysiologic changes associated with bacterial meningitis in regard to each of the following manifestations the patient exhibits: severe headaches, neck pain, nuchal rigidity, limited hip motion, seizures, and increased intracranial pressure.
2. Which of these manifestation(s) is (are) most significant in the diagnosis of bacterial meningitis? Why are there no focal signs present? What signs indicating increased intracranial pressure might you expect?
3. What are the causes of meningitis? Which microbe is most likely to be the cause in this case?
4. Discuss the transmission of bacterial meningitis and recommendations to protect other students and family. Think about her living situation and exposures and include these factors in your answer.
5. Once the lumbar puncture is complete and the CSF is analyzed, what do you expect to see in the lab report?
6. Discuss the treatments available to help return this patient to a more homeostatic state. What is her prognosis? What are some possible long-term complications?