



Stuck on Repeat: A Case Study on Brain Function

by

Carolyn L. Danna
Department of Biology
Stevenson University, Owings Mills, MD

Part I – Symptoms

Nancy was talking on the phone with a friend one day when she started to feel funny. Within minutes, she was unable to speak other than to repeat, “I don’t know who I am,” over and over. Her friend told her to push the medical assistance button on her home security panel, but she was unable to do so. Concerned, her friend called 911 from another phone. Nancy was walking around her kitchen in circles, unable to think of what to do next. When the ambulance arrived a few minutes later, Nancy answered the door but couldn’t tell them what medications she was on, whether she had taken them that day, or anything else about her medical history. She answered each question by repeating, “I don’t know who I am. I don’t know where I am.” The emergency medical technicians were able to discover that she was a 65-year-old female who was obese. A search of the house turned up prescriptions for Toprol, Celebrex, OcuVite, and cranberry extract. Upon arrival at the hospital, she had lost bilateral motor function in her lower limbs and was no longer able to walk.

Questions

1. What specific brain regions appear to be affected, based on the patient’s symptoms?
2. What lobe(s) are these regions located on?
3. What do you think happened to Nancy?
 - a. Would accidentally taking her prescriptions twice that day or forgetting to take her daily dosage explain her symptoms?
 - b. Would an especially salty meal combined with mild dehydration explain her behavior?
 - c. Are Nancy’s symptoms consistent with some kind of seizure?
 - d. Could Nancy be having a stroke?
 - e. Could Nancy be experiencing a psychotic episode?
 - f. Are there any other possible explanations for her symptoms?
4. What other information would you need to confirm your diagnosis?

Part IV – Progress and Treatment

A second CT with contrast and a magnetic resonance image (MRI) revealed an area of ischemia on the left parietal lobe. As she recovered from her stroke over the next few days, Nancy was able to understand conversations around her, and read and write individual words. However, when she spoke she was slow to form words and frequently chose the wrong word. The words she substituted for the correct ones were often the opposite (e.g., he/she) or a rhyme (e.g., bowl/poll) of the word she was searching for. She had more trouble understanding more complex linguistic structures, including longer sentences and paragraphs. While Nancy recovered much of her motor function, there was some weakness that persisted on the right side, particularly in the distal leg at the ankle joint.

Questions

1. What blood vessel would the clot have lodged in?
2. Does the portion of the left parietal continue to be ischemic? If not, what happened to the clot?
3. Given the progression of symptoms, explain what happened in Nancy's brain at the time of the stroke.
4. What treatments would you recommend as part of a long term care plan?