

Case study: disorders of brain function



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Question #1

The health care provider needs to obtain a complete medical history, medication history, life history, social and family history, to assess for any risk factors for stroke, such as hypertension, hyperlipidemia, diabetes, heart diseases (e. g., atrial fibrillation), chronic kidney disease, past stroke attack or transient ischemic attack (TIA), family history of stroke, obesity, smoking, inactivity, stress, use of anticoagulants, etc.. (Porth, 2011, p. 933). In addition, the nurse needs to inquire about any neurological deficits the patient is exhibiting, followed by a thorough physical, focusing on neurological exam, to evaluate patient's mental status, motor and sensory function, cranial nerve function, as well as to assess the patient's cognitive level (language, memory, judgment, problem-solving abilities, etc.).

Radiologic studies are essential tools to provide diagnostic information and guide treatment regimens. For example, a noncontrast head Computed tomography (CT) and brain Magnetic resonance imaging (MRI) can differentiate hemorrhage from ischemia and exclude intracranial lesions that mimic stroke clinically (Porth, 2011, p. 935). In addition, brain CT angiogram and carotid Doppler allow visualization of blood vessels and blood flow to the brain, which prove to be valuable diagnostic strategies in stroke management.

Question 2

Onset of stroke is sudden. Patients can manifest generalized symptoms as disorientation, confusion, dizziness, seizure, vomiting or severe headache.

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Clinical presentations are usually accompanied by focal neurologic deficits (depending on the location of vessel involved and the extent of injury), such as aphasia, visual field loss, contralateral sensory /motor loss, apraxia, agnosia, ataxia, cranial nerve deficits, etc.(Porth, 2011, p. 934).

Question 3

There are two types of strokes: ischemic and hemorrhagic. An ischemic stroke occurs as a result of vascular obstruction within cerebral circulation caused by thrombus or embolus with subsequent infarction and loss of neurologic function. Hemorrhage stroke results from a weakened vessel that ruptures and bleeds into the surrounding tissue. The blood accumulates and compresses the surrounding brain substance causing brain swelling. Strokes can be major or minor depending on the affected area. The consequences can range from complete recovery to fatality. Mr. J's clinical manifestations appear to be chronic global deterioration of cognitive function that interferes with memory, intellect, language, learning and judgment, which are not consistent with stroke but most likely indicate Alzheimer's dementia. A neurologist would need to be consulted.

Question 4:

Alzheimer's disease most often presents with a subtle onset of short memory loss followed by slowly progressive dementia that has a course of several years (Porth, 2011, p. 949). As the disease progresses, long-term memory can be impaired as well with more global impairment of cognitive functioning. Patients may exhibit confusion, disorientation, lack of insight, and inability to carry out the activities of daily living (Porth, 2011, p. 950).

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Personal hygiene is often neglected. Patients sometimes have problems recognizing friends and family member, organizing thoughts or learning new things. Other symptoms include: language difficulties, disturbed sleep pattern and loss of impulse control. They may also undergo personality changes and behavioral changes (e. g., agitation, hallucination, wondering, aggression, decreased awareness of environments and decreased self-care, etc.) which can be very distressing (Anderson, 2016).

Question 5

Based on Mr. J's presenting symptoms, the nurse would suspect that he is experiencing Alzheimer dementia because Mr. J's memory loss and cognitive impairment is gradual in nature and have been progressively getting worse. In contrast, a stroke event is often sudden onset and accompanied by focal neurological deficit such as limited movement on one side of the body, facial droop, aphasia or visual field deficit, etc. The health provider can obtain a complete history and physical, including a detailed neuro exam to exclude other possible causes of dementia. A mini-mental status exam (MMSE) (Snyderman, 2009) mini cog (Borson, 2003) or other screening tests can be performed to determine the severity and progression of cognitive decline. Head CT and MRI can produce highly detailed images to rule out other brain disorders with dementia-like symptoms. However, definite diagnosis of Alzheimer's can only be confirmed at autopsy when pathological exam of the brain reveals the characteristic deposition of amyloid in plaques and tau protein in neurofibrillary tangles (Hardy, 2002). Researchers (Small, 2006) have found that Positron-emission tomography (PET) scan with the use of amyloid-binding radiotracer to be able to detect brain level of plaques

(amyloid) and tangles (tau) in living subjects, which are characteristic of Alzheimer's disease. Measurement of key protein biomarkers in blood and in cerebrospinal fluid (CSF) can also be employed to indicate the likelihood of Alzheimer's disease (Blennow, 2010), which provide perspectives for new diagnostic tools for Alzheimer's disease.

References

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