

Module 14: Neurocognitive Disorders

Module 14 Outline

- 14.1. Clinical Presentation
- 14.2. Epidemiology
- 14.3. Etiology
- 14.4. Treatment

Module 14 Learning Objectives

- Describe how neurocognitive disorders present.
- Describe the epidemiology of neurocognitive disorders. Describe the etiology of neurocognitive disorders.
- Describe treatment options for neurocognitive disorders.

14.1 Clinical Presentation

Section 14.1 Learning Objectives

- Describe how delirium presents itself.
- Describe how major neurocognitive disorder presents itself.
- Describe how mild neurocognitive disorder presents itself.

Section 14.1 Key Terms

Delirium: Characterized by a notable disturbance in attention or awareness and cognitive performance that is significantly altered from one's usual behavior.

Dementia: A major neurocognitive disorder characterized by a striking decline in cognition and self-help skills.

Major neurocognitive disorder: Characterized by a significant decline in both overall cognitive functioning, as well as the ability to independently meet the demands of daily living, such as paying bills, taking medications, or caring for oneself.

Mild neurocognitive disorder: Characterized by a modest decline in one area of cognitive functioning; the disorder does not prevent one from independently engaging in daily activities.

Section 1.4 Key Takeaways

- Delirium is characterized by a notable disturbance in attention or awareness and cognitive performance that is significantly altered from one's usual behavior.
- Major neurocognitive disorder is characterized by a significant decline in both overall cognitive functioning as well as the ability to independently meet the demands of daily living.
- Mild neurocognitive disorder is characterized by a modest decline in one of the listed cognitive areas.

Section 14.1 Review Questions

1. Define delirium. How does this differ from mild and major neurocognitive disorders?
2. What are the main differences between mild and major neurocognitive disorders?

14.2 Epidemiology

Section 14.2 Learning Objectives

- Describe the epidemiology of neurocognitive disorders.

Section 14.2 Key Terms

Alzheimer's disease: A severe form of dementia; it is the most commonly diagnosed neurocognitive disorder.

Section 14.2 Key Takeaways

- As individuals age, the rate of occurrence of delirium and dementia increases dramatically.
- As for Alzheimer's disease, 53% of those afflicted with the disease are between the ages of 75 and 84 with another 40% above the age of 84.

Section 14.2 Review Questions

1. What is the rate of occurrence of the neurocognitive disorders?

14.3 Etiology

Section 14.3 Learning Objectives

- Define degenerative.
- Describe the symptoms and causes of Alzheimer's disease.
- Describe the symptoms and causes of traumatic brain injury (TBI).
- Describe the symptoms and causes of vascular disorders.
- Describe the symptoms and causes of substance abuse.
- Describe the symptoms and causes of dementia with Lewy bodies.
- Describe the symptoms and causes of frontotemporal lobar degeneration (FTLD).
- Describe the symptoms and causes of Parkinson's disease.
- Describe the symptoms and causes of Huntington's disease.
- Describe the symptoms and causes of HIV infection.

Section 14.3 Key Terms

Apolipoprotein E (ApoE): Helps to eliminate beta-amyloid by-products from the brain and has been implicated in the development of Alzheimer's disorder.

Beta-amyloid plaques: Beta amyloid is a protein fragment snipped from an amyloid precursor protein (APP); when it clumps together, it's called plaques; responsible for neuron death,

inflammation, and loss of cellular connections; often found in the brains of Alzheimer's patients upon autopsy.

Chronic traumatic encephalopathy (CTE): A progressive, degenerative condition due to repeated head trauma; a type of traumatic brain injury most commonly found in athletes and military personnel.

Concussion: The most common type of traumatic brain injury; occurs when there is a significant blow to the head, followed by changes in brain functioning.

Degenerative: When referring to a neurocognitive disorder, it means the symptoms and cognitive deficits become worse over time.

Dementia with Lewy bodies: Symptoms include significant fluctuations in attention and alertness; recurrent visual hallucinations; impaired mobility; and sleep disturbance; Lewy bodies are irregular brain cells that result from the buildup of abnormal proteins in the nuclei of neurons.

Frontotemporal lobar degeneration (FTLD): Causes progressive declines in language skills or behavior due to degeneration in the frontal and temporal lobes of the brain.

HIV infection: Infection with the human immunodeficiency virus; cognitive impairment occurs if left untreated and is sometimes the first symptom.

Huntington's disease: A rare genetic disorder that involves involuntary movement, progressive dementia, and emotional instability.

Neurofibrillary tangles: Abnormal accumulations of a protein called tau that collects inside neurons; associated with Alzheimer's disease.

Parkinson's disease: The second-most common neurodegenerative disorder in the United States; associated with muscle tremors and cognitive decline, although severity and progression of symptoms vary significantly from person to person.

Substance abuse: The abuse of psychoactive substances; significant cognitive changes occur due to repetitive and long-term drug and alcohol abuse.

Traumatic brain injury (TBI): Occurs when an individual experiences significant trauma or damage to the head; can cause neurocognitive disorder.

Vascular disorders: Can cause neurocognitive disorders and can occur from a one-time event, such as a stroke or ongoing subtle disruptions of blood flow within the brain.

Section 14.3 Key Takeaways

- Most neurocognitive disorders are degenerative meaning they become worse over time. Alzheimer's disease is characterized by the gradual progression of impairment in cognition as well as the presence of beta-amyloid plaques and neurofibrillary tangles.
- TBIs occur when an individual experiences significant trauma or damage to the head with the most common type being a concussion.
- Vascular disorders generally begin with atherosclerosis which leads to a stroke.

- Significant cognitive changes occur due to repetitive drug and alcohol abuse such as delirium. Dementia with Lewy Bodies is characterized by significant fluctuations in attention and alertness; recurrent visual hallucinations; impaired mobility; and sleep disturbance.
- FTLD causes progressive declines in language or behavior due to the degeneration in the frontal and temporal lobes of the brain.
- Parkinson's disease is characterized by tremors of hands, arms, legs, or face; rigidity of the limbs and trunk; slowness in initiating movement; and drooping posture or impaired balance and coordination.
- Huntington's disease involves involuntary movement, progressive dementia, and emotional instability.
- HIV infection begins with slower mental processing, difficulty with complex tasks, and difficulty concentrating and learning new information and progresses to significant impairment and alterations of mental processes.

Section 14.3 Review Questions

1. Define degenerative. What disorders discussed in this module are considered degenerative?
2. Identify the biological causes of Alzheimer's disease.
3. How do vascular disorders occur?
4. What are Lewy bodies? How does Dementia with Lewy Bodies differ from Alzheimer's disease?
5. What are the main symptoms of Parkinson's Disease?

14.4 Treatment

Section 14.4 Learning Objectives

- Describe treatment options for neurocognitive disorders.

Section 14.4 Key Terms

N/A

Section 14.4 Key Takeaways

- Pharmacological interventions target the neurotransmitters acetylcholine and glutamate, and newer research is focused on the build-up of beta-amyloid and neurofibrillary tangles.
- Psychological treatments include cognitive and behavioral strategies such as playing board games, reading books, or social skills training.
- Caregivers need to join support groups to help them manage their own anger and depression, especially since 90% of such caregivers are relatives of the afflicted.

Section 14.4 Review Questions

1. Review the listed treatment options for neurocognitive disorders. What are the main goals of these treatments?