

Quick Recertification Series

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Preparing to recertify (or certify for the first time) is an arduous process for which there is never enough time to practice and test one's knowledge. The Quick Recertification Series is one way PAs who are preparing to take the exam can meet their informational needs. In a condensed review format, the QRS addresses critical topics included on the exam. It also provides practice questions, answers, and their explanations. Successful completion of the NCCPA examination requires a variety of tactics. The QRS offers one more to add to your test-taking armamentarium.

ALZHEIMER'S DISEASE

GENERAL FEATURES

- By definition, dementia requires a loss of memory plus one other neurologic sign/symptom. Among these is the loss of executive functioning, apraxia, aphasia, or agnosia.
- To differentiate dementia from delirium: Delirium is a problem with ability to concentrate, to focus, and to pay attention. Those with dementia may have a paucity of thought but are able to pay attention.
- Alzheimer's dementia (AD) is a progressive neurologic disease that manifests with insidious decline in cognitive function.
- AD is the most common type of dementia.
- Classic signs and symptoms of AD include memory loss, difficulty performing familiar tasks, disorientation to time and place, misplacing things, changes in mood and behavior.
- Risk factors for AD include age >60 years, female gender, history of

This **Quick Recertification Series** is not meant to replace in-depth studying for the recertification exam and should be used only as an adjunct. Furthermore, the information contained here may not be sufficient to provide diagnosis and treatment in the clinical setting.

head injury, family history.

- The presence of the *APOE*E4* gene may indicate an increased risk.
- Early-onset AD may occur as early as age 30 years and has a strong familial predisposition.
- Phases of AD
 - Limbic (2-3 years after onset): antegrade/retrograde amnesia for events, loss of ability to recall past events, but will retain ability to perform many repetitive tasks of daily living
 - Parietal (3-6 years after onset): loss of comprehension of spoken language, apraxia of motor skills (eg, bathing/dressing), inability to recognize visual and/or audio stimuli
 - Late frontal (6-8 years after onset): motor disturbances, primitive reflexes (grasping and sucking)

CLINICAL ASSESSMENT

- The first clinical manifestations are usually primary short-term memory loss and subtle changes in behavior.
- Later signs and symptoms may include long-term memory loss, loss of speech fluency, apraxia, and loss of executive function.
- Signs of depression may be seen in up to 50% of patients with later AD.
- Extrapyramidal signs and psychosis may be seen much later.
- Mental status testing should be performed serially for surveillance, including short-term and long-term memory, orientation, attention, verbal recall, language (written and spoken), and visual spatial.
- Mini-Mental State Examination score ≤ 24 (range 0-30)
- Neuropsychological testing may assist in differentiating AD from other causes of dementia.
- Typically, no focal deficits are found on neurologic examination in patients with AD. This may aid in differentiating between AD and multi-infarct dementia, in which focal neurologic deficits are common.

QUESTIONS & ANSWERS

1. A 74-year-old woman presents to your office with a chief complaint of "forgetfulness." Her daughter states that the woman is becoming confused, misplacing personal items, and repeating herself. Mental status test results show deficits in short-term memory and subtle language deficits. The woman has no focal neurologic finding, and her long-term memory is intact. She has had no previous treatments for dementia. What is a good first-line treatment for this patient?

- a. A cholinesterase inhibitor
- b. An NMDA receptor antagonist
- c. Vitamin E supplementation
- d. Huperzine A

Answer: a

Explanation: This woman is displaying signs and symptoms of mild dementia and has not received any previous treatment, making the cholinesterase inhibitors a good first-line treatment option. NMDA receptor antagonists are useful in moderate to severe Alzheimer's disease (AD), and the efficacy and safety of vitamin E and huperzine have not yet been established for treatment of this disease.

2. The presence of extrapyramidal signs in a patient with known AD suggests

- a. The need for titration off of their NMDA receptor antagonist
- b. The progression of the disease to a later stage
- c. The need for vitamin supplementation
- d. The presence of concomitant depression

Answer: b

Explanation: The presence of extrapyramidal signs is suggestive of a later stage of AD. Side effects of NMDA receptor antagonists are not common but include headache, dizziness, and increased confusion. The use of vitamin supplementation is not firmly established in the treatment of AD; and although up to 50% of patients with AD have depression, it does not generally manifest with extrapyramidal signs.

Quick Recertification Series

- Tests for dementia
 - Screening laboratory tests: serum electrolytes, CBC, thyroid function, B₁₂ level
 - Additional tests based on presentation: syphilis, calcium, HIV, CSF analysis, urinalysis, urine toxicology
 - Imaging is not necessary to make a diagnosis of AD. Head CT/MRI may be ordered if hydrocephalus, a mass lesion, or a subdural hematoma are concerns.
 - The presence of amyloid plaques and tau in the CSF is suggestive of the disease.

▶ TREATMENT

- Focus is on maximizing function and slowing disease progression.
- Behavioral approaches
 - Limbic phase: Maximize social engagement and intellectually stimulating activities
 - Parietal phase: Address patient safety issues
 - Late frontal: Address caregiver stress and possible need for placement in skilled nursing facility
- Medications (no medications improve clinical outcomes)
 - Cholinesterase inhibitors (donepezil [Aricept], galantamine [Razadyne, generics], and rivastigmine [Exelon, generics]) may control symptoms but do not stop progression of disease. All have GI side effects (nausea, diarrhea, anorexia).
 - NMDA receptor antagonist (memantine [Namenda]) given for moderate to severe AD. Side effects are not common but include headache, dizziness, and increased confusion.

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- The efficacy and safety of alternative agents, such as vitamin E, vitamin C, huperzine A, and *Ginkgo biloba*, are still not well-established.

MYASTHENIA GRAVIS

▶ GENERAL FEATURES

- Myasthenia gravis (MG) is an autoimmune disease characterized by skeletal muscle weakness and fatigue.
- The two types of MG are ocular, which involves the eyelids and extraocular muscles, and generalized, which may involve ocular, bulbar, respiratory, and extremity muscles.
- Neonatal MG is a transient condition related to the neonatal transmission of maternal antibodies that affect the neuromuscular junction.
- Although MG may occur at any age, the disease most commonly affects young women and older men, in a bimodal distribution.
- 10% to 15% of persons with MG have underlying thymoma.

▶ CLINICAL ASSESSMENT

- Fluctuating skeletal muscle weakness, often associated with true muscle fatigue, should be distinguished from a sense of tiredness.
- Ocular symptoms include diplopia and ptosis.
- Bulbar symptoms include difficulty with chewing and swallowing.
- Less common symptoms include neck, distal limb, and isolated respiratory muscle weakness.
- Sensation and deep tendon reflexes are usually normal.
- Monitoring respiratory status, particularly negative inspiratory force, vital capacity, and tidal volume, is critical in the early stages of MG because acute respiratory failure may be caused by respiratory muscle weakness.

▶ DIAGNOSIS

- Edrophonium (Tensilon) test results in sudden, temporary improvement in muscle strength following IV administration of the drug. However,

edrophonium is no longer manufactured in the United States, so testing is limited to the available supply.

- Immunologic assays, which determine the levels of circulating acetylcholine receptor antibodies (AChR-Ab) as well as antibodies to muscle-specific tyrosine kinase (MuSK), are the most commonly used confirmatory tests. Antibodies to MuSK are present in 38% to 50% of persons with AChR-Ab negative, generalized MG.
- Electrophysiologic testing may include repetitive nerve stimulation and single-fiber electromyography. Results will indicate a reduction in muscle response.
- Once the diagnosis is made, a chest CT should be ordered to look for thymoma.

▶ TREATMENT

- Symptomatic therapy with cholinesterase inhibitors is usually the primary treatment.
- Chronic immunotherapies, such as glucocorticoids and immunosuppressive drugs and rapid immunotherapies, including plasma exchange and IV immunoglobulin, may be used in patients with refractory disease.
- Thymectomy may lead to symptomatic improvement. **JAAPA**

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▶ QUESTION & ANSWER ◀◀

1. You suspect a patient has myasthenia gravis. To confirm the diagnosis, you order
 - a. Thyroid function tests
 - b. A chest CT
 - c. An immunoassay for elevated levels of circulating acetylcholine receptor antibodies
 - d. A cortisol stimulation test

Answer: c

Explanation: The immunoassay for circulating acetylcholine receptor antibodies has good specificity (80%-90%) and is the most commonly used test to confirm a diagnosis of MG.