



Working Together: Improving Early Diagnosis and Management of Alzheimer's Disease in Primary Care

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Disclosures



Sara Leonard, MD reports no financial relationships.

Robert J. Varipapa, MD reports no financial relationships.

Theresa Barrett, PhD, Emelyn Falcon, and Charles Goldthwaite, PhD (Planners) report no financial relationships.

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Learning Objectives

- **Explain the importance of early diagnosis of AD;**
- **Apply office-based cognitive assessment tools to aid in early diagnosis of AD;**
- **Employ an inter-disciplinary team in the management of behavioral issues in patients with AD;**
- **Engage in dialogue with patients and caregivers in a subsequent treatment plan;**
- **Outline a plan to connect patients with AD to community-based resources for long-term management.**

Housekeeping



- Complete the pre-test questions now.
- There is a space to record your answers for the case study.
- Complete the post-test at the end of the session.
- Complete the evaluation form and claim your credit.
- Return the form to a staff member or at the registration desk.



Alzheimer's Disease (AD): Pathophysiology, Disease Progression, and Impact



What is Dementia?

- A syndrome that describes a group of neurologic conditions that are characterized by difficulties with memory, language, problem-solving, and other thinking skills
- Not part of the normal aging process
- Caused by specific changes in the brain and usually degenerative
- Numerous dementias have been characterized, but four types—AD, Frontotemporal dementia, Lewy body dementia, and vascular dementia--account for the vast majority of cases.
- An individual may concomitantly show symptoms and/or pathologic evidence of more than one type of dementia, a designation known as *mixed dementia*.

Common Types of Dementia



Type	Brain Abnormalities	Symptoms	Typical Age at Diagnosis
Alzheimer's Disease	Deposits of β -amyloid protein and tangles of tau protein throughout brain	<ul style="list-style-type: none">• Impaired memory, language, visual/spatial skills• Apathy and/or depression	65+; some cases mid-30s-early 60s
Frontotemporal Dementia	Accumulation of tau and TDP-43 proteins in frontal and temporal lobes	<ul style="list-style-type: none">• Personality changes• Issues with language• Balance issues; palsy• Lack of emotional/impulse control	45-64
Lewy Body Dementia	Deposits of alpha-synuclein protein ("Lewy bodies") on cortical nerve cells	<ul style="list-style-type: none">• Hallucinations• Sleep difficulties• Impaired thinking and motor skills	50 and older
Vascular Dementia	Disrupted blood flow to the brain	<ul style="list-style-type: none">• Impaired motor skills & judgement• Memory issues• Hallucinations/delusions	Over 65



The Impact of AD (1)

- Accounts for 60-80% of cases of dementia¹
- Affects ~6.5 million (10.7%) US adults aged 65 and older²
- Projected to rise to 12.7 million by 2050 due to aging of the US population²
- Incidence increases with age,¹ but AD can manifest at any time.
- Physiologic changes likely begin several decades before the patient notices symptoms.^{3, 4}

Sources: ¹Alzheimer's Association. *Alzheimers Dement* 2022;18:700-89; ²Rajan KB, et al. *Alzheimers Dement* 2021;17:1966-75; ³Bateman RJ, et al. *N Engl J Med* 2012;367:795-804; ⁴Gordon BA, et al. *Lancet Neurol* 2018;17:241-50.



The Impact of AD (2)

- Women account for two-thirds of AD cases in the US¹
- Women have a 1 in 5 lifetime risk for Alzheimer's dementia at age 45, compared to 1 in 10 for men.²
- Older non-Hispanic Blacks and Hispanic Americans are disproportionately more likely than older Whites to have demntias,³ reflecting health disparities more than genetic distinctions.⁴
- The rate of disease progression varies widely, with an average lifespan of 8-12 years from diagnosis.³
- In addition to the costs of hired care, friends/family caregivers provided more than \$271 billion dollars in unpaid care to individuals with dementia in 2021.³

Sources: ¹Rajan L, et al. *Alzheimers Dement* 2021;17:1966-75; ²Chêne G, et al. *Alzheimers Dement* 2015;11:310-20;
³Alzheimer's Association. *Alzheimers Dement* 2022;18:700-89; ⁴Glymour MM, Manly JJ. *Neuropsychol Rev* 2008;18:223-54.



Pathophysiology of AD

- Characterized by two prototypical brain lesions: 1) senile plaques, or extracellular lesions composed of accumulated insoluble β -amyloid peptide ($A\beta$), and 2) intra-neuronal fibrous tangles (NFT) of hyperphosphorylated tau protein (P-tau).¹
- Several mechanisms proposed to explain the relationship between these changes and cognitive decline.
- Protein deposits excessively stimulate neurotransmitter receptors in the neuronal membranes, promoting a collapse in calcium homeostasis, inflammation, and the depletion of energy and neuronal factors.^{1,2}
- This process irreversibly damages neurons and synapses involved in memory, learning, and other cognitive functions.

Sources: ¹Silva MVF, et al. *J Biomed Sci* 2019;26:33; ²Breijyeh Z, Karaman R. *Molecules* 2020;25:5789.

The Three Phases of Alzheimer's Disease



Pre-Clinical AD	<ul style="list-style-type: none">• Biomarker evidence of brain changes• Asymptomatic
Mild Cognitive Impairment (MCI) due to AD	<ul style="list-style-type: none">• Biomarker evidence of brain changes• Subtle symptoms (issues with memory, language, or thinking) that may or may not impair daily activity
Dementia due to AD	<ul style="list-style-type: none">• Changes impair daily function

Duration in a phase is influenced by sex, clinical setting, presence of abnormal tau protein, and carrying the *APOE* ε4 allele.

Sources: Alzheimer's Association. *Alzheimers Dement* 2022;18:700-89; Vermunt L, et al. *Alzheimers Dement* 2019;15:888-98.



AD Risk Factors and Potentially Protective Measures Against Cognitive Impairment





Genetic Risk Factors for AD

- Genes and polymorphisms linked with AD are nearly always associated with processes implicated in the formation or deposition of A β plaques.¹
- Early-onset disease (symptoms appear before age 65) is associated with mutations in presenilin 1 (*PSEN1*), presenilin 2 (*PSEN2*), or amyloid precursor protein (*APP*).^{1,2}
- Late-onset AD is primarily associated with the presence of the ϵ 4 allele in the apolipoprotein E gene (*APOE*).^{1,2}
- APOE protein binds soluble A β , and *APOE* ϵ 4 alleles accelerate A β deposition and increase the risk of developing AD from 3X (1 allele) to 12X (2 alleles).³

Genetic factors account for an estimated 70% of the risk of developing AD.²

Sources: ¹Silva MVF, et al. *J Biomed Sci* 2019;26:33; ²Ballard C, et al. *Lancet* 2011;377:1019-31; ³Mendez MF. *Neurol Clin* 2017;35:263-81.



Acquired Risk Factors for AD

- Cerebrovascular disease
- Diabetes
- Hypertension
- Obesity
- Hypercholesterolemia
- Marital status (widowhood)
- Stress
- Depression
- Inadequate sleep/Sleep disturbances
- Smoking

Measures to Reduce the Risk of Cognitive Decline



Risk Reduction Strategies

Cognitive Reserve

Diet

Physical Activity

Cognitive Reserve



Cognitive Reserve: The capacity to tolerate age- or disease-related changes in the brain without developing clinical symptoms.

- Can help maintain cognitive function and postpone clinical dementia and AD.^{1,2}
- Built through mentally stimulating patterns of behavior (e.g., formal education, hobbies, occupational complexity, a mentally and socially integrated lifestyle) across the age continuum.
- Activities that meld physical, mental, and social stimulation may be most beneficial²
- Accessible activities: crossword puzzles/games, playing a musical instrument, participating in a book club, a routine walk with a friend.

Sources: ¹Valenzuela MJ, Sachdev P. *Psychol Med* 2006;36:441-54; ²Fratiglioni L, et.al. *J Alzheimers Dis* 2007;12:11-22.



Dietary Interventions

- Antioxidants, fatty acids, and B vitamins have been linked with better cognitive functioning in prospective epidemiologic studies, although the value of any specific nutrient has not been confirmed in RCTs.¹
- “DASH” or “Mediterranean” diets are rich in whole foods (e.g., fruits, vegetables, fish, nuts, beans, olive oil) but low in processed foods and saturated fats.^{2,3}
- Can lower blood pressure, protect against chronic conditions, reduce inflammation, and support weight loss regimens.
- Part of a healthy lifestyle that may positively impact cognitive decline.

Sources: ¹Smith PJ, Blumenthal JA. *J Prev Alzheimers Dis* 2016;3:53-64; ²Harvard Medical School. Harvard health blog: a practical guide to the Mediterranean diet; 2019; ³Mayo Clinic. DASH diet: healthy eating to lower your blood pressure; 2022.

Physical Activity



- Meta-analyses suggest that higher levels of physical activity are associated with a reduced risk of cognitive decline and dementia.^{1,2}
- Lowers blood pressure, improves lipid profiles, helps regulate glycemic levels, and facilitates weight management.
- Postulated to exert brain-specific effects that could prevent AD, including increasing neurotrophic factors, reducing free radicals in the hippocampus, and stimulating neurogenesis and synaptic plasticity.³

Patients who have or are at risk for cognitive impairment should be encouraged to be active, with a particular focus on incorporating aerobic activity.

Sources: ¹Blondell SJ, et.al. *BMC Public Health* 2014;14:510; ²Hamer M, Chida Y. *Psychol Med* 2009;39:3-11; ³Silva MVE, et al. *J Biomed Sci* 2019;26:33.



“Where Did I Put my Keys?”: Early-Stage AD versus Typical Age-Related Cognitive Change

Non-Dementia Conditions with Dementia-Like Symptoms



- Depression
- Sleep Apnea
- Delirium
- Medication side-effects
- Lyme disease
- Vitamin B₁₂ deficiency
- Excessive alcohol consumption.



Hallmark Symptoms of Early-Stage AD

- **Short-term memory loss** (e.g., remembering recent conversations, names, or events)
- **Difficulty completing familiar tasks**
- **Mood/personality changes** (e.g., apathy, depression)

In many instances, a patient's family member will report that their loved one is struggling with short-term memory. Some patients may actively deny this development even though it is happening.

Early-Stage AD versus Typical Age-Related Changes (1)



Sign	Examples of AD	Typical Age-Related Change
Memory loss that disrupts daily life	<ul style="list-style-type: none">• Forgetting recently-learned information or important dates/events• Asking the same questions over and over• Increasingly relying on memory aids or family members for things previously handled solo	Sometimes forgetting names or appointments but remembering them later.
Challenges in planning or solving problems	<ul style="list-style-type: none">• Difficulty developing a plan or working with numbers• Trouble following a familiar recipe or monthly bills• Difficulty concentrating; taking much longer to do things than previously needed	Occasionally erring when managing finances or household bills.

Early-Stage AD versus Typical Age-Related Changes (2)



Sign	Examples of AD	Typical Age-Related Change
Trouble with visual images and spatial relationships	<ul style="list-style-type: none">• Vision problems that cause difficulty with balance or trouble reading• Problems judging distance and determining color or contrast, causing issues with driving	Vision changes related to cataracts.
New problems with words when speaking or writing	<ul style="list-style-type: none">• Trouble following or joining a conversation• Stopping in mid-conversation with no idea how to continue• Repeating one's own statements• Struggling with vocabulary• Trouble naming a familiar object	Sometimes having trouble finding the right word.

Early-Stage AD versus Typical Age-Related Changes (3)



Sign	Examples of AD	Typical Age-Related Change
Misplacing items and losing the ability to retrace steps	<ul style="list-style-type: none">Putting items in unusual placesLosing items and being unable to retrace their steps to locate themAccusing others of stealing, especially as the disease progresses.	Misplacing things from time to time and retracing steps to find them.
Decreased or poor judgement	<ul style="list-style-type: none">Changes in judgment or decision-makingUsing poor judgment when dealing with moneyPaying less attention to grooming or keeping clean.	Making a bad decision or mistake once in a while, like neglecting to change the oil in the car.

Source: Alzheimer's Association. https://www.alz.org/alzheimers-dementia/10_signs.

Early-Stage AD versus Typical Age-Related Changes (4)



Sign	Examples of AD	Typical Age-Related Change
Withdrawal from work or social activities	<ul style="list-style-type: none">• Experience changes in the ability to hold or follow a conversation• Withdraw from hobbies, social activities, or other engagements• Trouble keeping up with favorite team or activity.	Sometimes feeling uninterested in family or social obligations.
Changes in mood or personality	<ul style="list-style-type: none">• Experience mood and personality changes• Become confused, suspicious, depressed, fearful, or anxious• Be easily upset at home, with friends, or when out of a comfort zone.	Developing very specific ways of doing things and becoming irritable when a routine is disrupted.

Source: Alzheimer's Association. https://www.alz.org/alzheimers-dementia/10_signs.

Early-Stage AD versus Typical Age-Related Changes (5)



Sign	Examples of AD	Typical Age-Related Change
Difficulty completing familiar tasks	<ul style="list-style-type: none">• Trouble driving to a familiar location or organizing a grocery list• Difficulty remembering the rules of a favorite game	Needing occasional help with microwave settings or to record a TV show.
Confusion with time or place	<ul style="list-style-type: none">• Losing track of the passage of time• Trouble understanding non-immediate things• Forgetting where one is or how one arrived there	Getting confused about the day of the week but figuring it out later.



Assessing Cognitive Impairment in Primary Care





The Importance of Early Detection

- Improves the quality of life for patients who will ultimately experience cognitive decline and for their caregivers.
- Enhances caregivers' understanding of behavioral changes and facilitates interventions to maintain daily functioning and slow cognitive decline.
- Enables opportunity for needed future planning and management.
- Cognitive assessment for signs of dementia is included in the Annual “Wellness” Visits covered by Medicare Part B.

Cognitive Assessment Toolkits are available from the Alzheimer’s Association, the American Academy of Family Physicians, and ACT on Alzheimer’s.¹⁻³

Sources: ¹Alzheimer's Association. <https://www.alz.org/getmedia/9687d51e-641a-43a1-a96b-b29eb00e72bb/cognitive-assessment-toolkit>; ²American Academy of Family Physicians. <https://www.aafp.org/family-physician/patient-care/care-resources/cognitive-care.html>; ³ACT on Alzheimer's. <https://actonalz.org/medical-providers>.



Cognitive Evaluation in Primary Care

- Cognitive evaluation in a medical setting establishes a baseline that can be followed over time to track changes.
- Many easy-to-use detection tools can be implemented in the office:
 - **Mini-Mental State Examination (MMSE)**
 - **Clock Drawing Test (CDT)**
 - **Memory Impairment Screen (MIS)/MIS by Telephone (MIS-T)**
 - **Abbreviated Mental Test (AMT-10)**
 - **Montreal Cognitive Assessment (MoCA)**
 - **Short Portable Mental Status Questionnaire (SPMSQ)**
- Many are available in multiple languages, although the MoCA requires certification to administer.



Evaluating a Screening Test Score

- Provides insight into the type and severity of impairment
- Cannot be used solely to diagnose dementia
- Must be evaluated within a holistic context that includes a physical examination, family history, medical history, and laboratory tests as needed to rule out conditions (e.g., vitamin B₁₂ deficiency, hypothyroidism) that could produce symptoms similar to those of dementia.
- Perspective from an informant who has a close relationship with the patient will often prove insightful.



Other Screening Considerations

- Evaluate for risk factors that are potentially modifiable¹
- Assess for the presence of functional impairment related to cognition before giving a diagnosis of dementia¹
- Assess for MCI if the patient's close contact voices concern about memory or impaired cognition¹
- Screen for depression using a validated tool such as PHQ-2 or PHQ-9.

There are no recommendations to support the routine use of neuroimaging in patients with dementia or routine genetic testing for the *APOE* $\epsilon 4$ allele.



Tenets of Proactive AD Management





The Role of the Primary Care Clinician

- Identify patients at risk for AD or other cognitive disorders
- Understand cultural factors and patient preferences for treatment
- Discuss practical considerations for managing cognitive impairment
- Discuss management with patient and caregivers
- Coordinate efforts with an AD care team (e.g., neurologist, gerontologist, social worker)
- Keep the patient actively engaged in disease management.

Primary care clinicians play critical roles in identifying patients who have or are at risk for AD and ensuring that they receive prompt and effective care.

Central Tenets of Proactively Managing Dementia (1)



- Appropriate use of available treatment options.
- Effective management of coexisting conditions.
- Providing family caregivers with effective training in managing the day-to-day life of the care recipient.
- Coordination of care among physicians, other health care professionals, and lay caregivers.

Central Tenets of Proactively Managing Dementia (2)



- Participation in activities that are meaningful to the individual with dementia and bring purpose to their life.
- Maintaining a sense of self-identity and relationships with others.
- Having opportunities to connect with others living with dementia, such as support groups and supportive services.
- Becoming educated about the disease.
- Planning for the future.

Talking about AD with Patients and Caregivers



- Frankly and honestly discuss what to expect.
- Aim to build a trusting relationship that will promote effective long-term management.
- Be straightforward and open about management challenges, addressing practical issues such as:
 - Advanced directives (e.g., power of attorney, living wills, guardianship, end-of-life care/portable medical orders)
 - The possibility of developing comorbidities such as anxiety or depression
 - Behavioral changes that the afflicted individual may experience.
- At follow-up visits, have the patient and/or caregiver write questions before coming to the office so that no concern is overlooked.

Pharmacotherapy for Cognitive Decline



- The neuronal damage associated with MCI is irreversible; there is no cure for AD.
- Lifestyle modifications can be beneficial.
- FDA-approved pharmacotherapies that may apply to patients with AD fall within two general categories:
 - 1) Treatments that address the underlying disease biology**
 - 2) Agents that may help lessen symptoms (e.g., memory loss, confusion)**

Agents that Address Underlying Disease Biology: Aducanumab and Lecanemab



- **Aducanumab** and **lecanemab** approved through FDA's Accelerated Approval Pathway to treat patients with MCI or mild dementia due to AD.^{1,2}
- Target β -amyloid protein isoforms that can form plaques, decreasing (but not halting) $A\beta$ production.
- Reduce cognitive and functional decline in individuals who have early-stage AD.^{3,4}
- No evidence for restoring lost memories or cognitive function.

Sources: ¹US FDA. Aduhelm prescribing information; 2021; ²US FDA. Leqembi prescribing information; 2023; ³Budd Haeberlein S, et al. *J Prev Alzheimers Dis* 2022;9:197-210; ⁴van Dyck, et al. *N Engl J Med* 2023;388:9-21.

Agents that Address Underlying Disease Biology: Aducanumab and Lecanemab



- Presence of A β plaques should be confirmed before prescribing.
- No contraindications for use, although precautions for amyloid-related imaging abnormalities and infusion-related reactions are noted.^{1,2}
- Approvals have been controversial based on safety and efficacy concerns and cost.^{3,4}
- Currently of limited availability and are not covered by Medicare for persons who are not enrolled in a clinical trial.

Sources: ¹US FDA. Aduhelm prescribing information; 2021; ²US FDA. Leqembi prescribing information; 2023; ³Ebell MH, Barry HC. *Am Fam Physician* 2022;105:353-54; ⁴Reardon S. *Nature* 2023;613:227-28.

Agents that May Help Lessen AD Symptoms



- The FDA has approved three cholinesterase inhibitors (**donepezil**, **galantamine**, **rivastigmine**) and one glutamate regulator (**memantine**) to treat symptoms related to memory, language, and other thought processes in patients with AD.¹⁻⁴
- Cholinesterase inhibitors prevent the breakdown of acetylcholine, thereby enhancing communication between neurons. Agents appear to be equally efficacious, and it is not possible to identify responders upfront.⁵
- Side effects may include nausea, vomiting, loss of appetite, and increased frequency of bowel movements.
- Memantine side effects include headache, constipation, confusion, and dizziness.
- Donepezil plus memantine is also approved as a combined agent.

Sources: ¹US FDA. Aricept prescribing information; 2012; ²US FDA. Razadyne ER prescribing information; 2015; ³US FDA. Exelon prescribing information; 2018; ⁴US FDA. Namenda prescribing information; 2013; ⁵Birks J. *Cochrane Database Syst Rev* 2006;1:CD005593.

Agents that May Help Lessen AD Symptoms



- The FDA has also approved suvorexant to treat insomnia, and the agent has been shown effective as a sleep aid in persons with mild to moderate AD.¹ Side effects include impaired alertness and motor coordination, worsening of depression or suicidal ideation, complex sleep behaviors or sleep paralysis, and compromised respiratory function.
- Agents that may lessen symptoms are not indicated for MCI.

! None of the agents that may lessen symptoms slows the progression of cognitive decline. Studies of cholinesterase inhibitors in individuals with MCI showed no benefit on cognitive outcomes or reduction in progression from MCI to dementia.²



When to Refer to a Neurologist

Diagnosing and treating uncomplicated dementia falls well within the scope of family medicine. Situations that warrant referral include:

- Patients under age 65 who present with memory loss or cognitive changes
- Patients with acute or rapidly-progressing cognitive impairment
- Individuals with findings suggestive of stroke, cerebral hemorrhage, or subdural hematoma
- Case-specific factors, including complicated or atypical presentation, symptoms, or disease progression
- Other reasons at the discretion of the primary care clinician.



Addressing Disparities in AD Care



The Culturally-Informed Office

- Language- and topic-appropriate materials
- Staff to match population served
- Bilingual or language-appropriate wall posters and signs
- Written text geared for comprehension
- A trained medical interpreter or access to interpretation services
- Staff trained to overcome cultural misconceptions
- Recognition of culturally-observed holidays.

Establishing a culturally-informed office is the first step toward providing culturally-appropriate care.

Considerations for Providing Culturally-Appropriate Care (1)



- Education level and health literacy (e.g., ability to understand concepts)
- Family integration and support systems (church, community)
- Cultural judgments about disease and norms regarding body image
- Knowledge about AD
- Learning styles and motivational strategies

Considerations for Providing Culturally-Appropriate Care (2)



- Spiritual beliefs (e.g., belief that events are predetermined by fate)
- Nutritional preferences
- Alternative/herbal practices and folk remedies
- Language issues



Partnering with Minority Patients





Partnering with Minority Patients

- Appreciate value system associated with patient's cultural heritage
- Emphasize holistic care by recognizing biologic, psychologic, and faith-based components
- Provide framework to understand level of disease severity and realistic treatment options
- Promote trust through engaged attitude
- Avoid paternalistic stance

Culturally-informed care is based on a partnership between the patient and the healthcare provider.

The “Teach-Back” Approach



“Teaching back”



Have the patient repeat your statements in their own words.

- Assesses patient’s health literacy and language proficiency
- Promotes understanding of cultural issues
- May facilitate adherence to an intervention.

Culturally-Informed Care for Latino Patients



- Listen for somatic presentation of complaints
- Recognize that disease may be perceived as internal/external imbalance (e.g., body and soul)
- Be aware of folk-healing traditions
- Incorporate support systems into treatment (family, clergy, social workers, counselors)
- Recognize central role of male family members
- Provide trained medical interpreter when needed

Culturally-Informed Care for African-American Patients



- Respect the patient's understanding of illness
- Use open-ended questions to ensure that you and the patient have common meaning
- Recognize the patient's medical beliefs, including folk-, home-, and herbal-based remedies
- Recognize the role of spirituality as a coping mechanism
- Incorporate beneficial or neutral folk remedies into the plan of care
- Recognize that medication cost and complex dosage instructions may promote non-adherence.



Case Study: Lena

Diagnosing AD in Primary Care

Photo Credit: Unsplash.

Case Study: Lena



- 65 y/o African-American woman accompanied by her daughter and son-in-law, who state that Lena has trouble remembering details about her home and sometimes loses track of who she is speaking to.
- Lena says that she sometimes forgets details due to “just getting old and tired.”
- Daughter also notes that Lena has periods where she does not seem to be her usual self and appears to be in a mental fog, forgetting recent conversations and events.
- Son-in-law states that he first noticed Lena’s confusion about a year ago but that it has evolved from an isolated instance or two to occur nearly every time he speaks with her.
- Lena lives alone; her family is increasingly concerned for her daily welfare.



Case Study: Lena



With only this information, should you suspect cognitive impairment or early-stage AD?

- a) **Yes.** Lena shows hallmark symptoms of early-stage AD, such as difficulty remembering recent conversations, names, or events. Her self-characterization as “old and tired” may also suggest depression, another AD-associated symptom and a risk factor.
- b) **No.** Dementia is unlikely to affect an otherwise healthy 65-year-old, and sometimes forgetting names or appointments is typical as long as they can be recalled at a later point.



Case Study: Lena



Lena's exam results:

BP: 130/80 mm Hg

Pulse: 78 beats/minute

Physical exam: Normal

BMI: 25 kg/m²

Alcohol or tobacco use: No

Prescription medications: lisinopril



Case Study: Lena



What other assessments can help you determine whether Lena's symptoms represent cognitive impairment?

- a) A validated test of memory and cognitive function, such as the MMSE or MoCA
- b) A depression screen, such as the PHQ-2 or PHQ-9
- c) Family history
- d) Laboratory tests as needed to rule out conditions (e.g., vitamin B₁₂ deficiency, hypothyroidism) that could produce symptoms similar to those of dementia
- e) All of the above



Case Study: Lena



You administer the MMSE and PHQ-2. Lena's score on the former falls into the range of abnormal function. How can you interpret this result in the context of what you know so far?

- a) **Lena definitely has cognitive impairment that extends beyond age-related change.** The MMSE and other validated tests of memory and cognitive function can serve as definitive instruments to diagnose cognitive impairment in the presence of other symptoms.
- b) **Lena likely has cognitive impairment that extends beyond age-related change.** There is no single test that will diagnose cognitive impairment or AD unequivocally. However, a score below the threshold for normal cognition, when taken in the context of other information present, is suggestive of cognitive impairment.
- c) **The results of these screens are inconclusive.**



Case Study: Lena



Lena's cognitive function impacts daily life, and proactive management is warranted to maintain her quality of life and ensure that she receives needed assistance. Which of the following should you consider when developing a management plan with a care team?

- a) Effectively managing coexisting conditions
- b) Providing family caregivers with effective training in managing Lena's day-to-day life going forward
- c) Coordinating care among physicians, other health care professionals, and lay caregivers
- d) Using appropriate available treatment options
- e) Educating Lena and her caregivers about MCI and AD
- f) Planning for the future
- g) Connecting the family with others living with dementia, such as support groups and supportive services
- h) All of the above



Case Study: Lena



Lena's daughter asks about a supplement that she saw on social media--a natural memory aid that boosts brain function. Would you recommend that Lena take this supplement?

a) **No.** Memory aid" supplements have been marketed aggressively but are not supported by any clinical evidence to date. There is no proof that such agents have any benefit on cognition.

b) **Yes.** These formulations are relatively harmless in that their components are natural products that can be found in various diets. There is no harm in trying one of these products, although it may or may not work.



Case Study: Lena



Lena asks about medicines that she can take to restore lost memory function. Which of the following agents can reverse neuronal damage, effectively restoring some lost cognitive function?

- a) Aducanumab
- b) Donepezil
- c) Galantamine
- d) Lecanemab
- e) Rivastigmine
- f) Memantine
- g) *a* and *d* only
- h) None of the above.



Case Study: Lena



You schedule a follow-up visit with Lena, her daughter, and her son-in-law in a week to discuss laboratory results and to establish a plan forward. What elements should you address in this conversation?

- a) Practical issues such as advanced directives (e.g., power of attorney, living wills, driving issues, guardianship)
- b) Addressing comorbidities such as anxiety or depression
- c) Planning for behavioral changes that Lena may experience
- d) Uncertainties regarding prognosis and limitations of treatment options
- e) All of the above.



AD Resources for Clinicians and Patients



Alzheimer's Association	www.alz.org
Alzheimer's Foundation of America	www.alzfdn.org
National Institute on Aging (NIA)	www.nia.nih.gov/alzheimers
National Institute of Neurological Disorders and Stroke (NINDS)	www.ninds.nih.gov
Caring.com	https://www.caring.com/senior-living/memory-care-facilities



Conclusion and Clinical Pearls

- Alzheimer's disease progresses through pre-clinical AD; mild cognitive impairment (MCI) due to AD; and Alzheimer's dementia.
- Hallmark symptoms of early-stage AD include difficulty remembering recent conversations, names, or events, apathy, or depression.
- Early signs of AD can often be distinguished from natural age-related cognitive changes.
- Many convenient screening tools for cognitive impairment can be implemented in primary care.
- Effective management requires honest and frank conversations that educate and prepare the patient and caregivers about what to expect.
- Management includes establishing a professional AD care team (e.g., neurologist, gerontologist, social worker, psychiatrist) and ensuring that family caregivers receive effective training in managing the day-to-day life of the care recipient.

Questions



To learn more about AD management and earn additional CME credit,
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