

Management of Dementia

By Cynthia M. Carlsson, MD, MS

REVIEW ARTICLE



CONTINUUM AUDIO
INTERVIEW AVAILABLE
ONLINE

ABSTRACT

PURPOSE OF REVIEW: This article describes an approach to managing patients following a diagnosis of dementia, including medical management, nonpharmacologic strategies, safety interventions, caregiver support, mobilization of community resources, and advanced care planning.

RECENT FINDINGS: Dementia clinical syndromes are frequently caused by mixed pathologies, leading to varied clinical presentations that include memory loss, behavioral changes, communication challenges, safety concerns, and loss of independent function. Medications for treating dementia currently target cognitive and behavioral symptoms, although disease-modifying therapies for Alzheimer disease may be making their way into widespread clinical practice soon. Identification and treatment of co-occurring medical problems, such as obstructive sleep apnea, adverse medication effects, mood disorders, hearing loss, pain, alcohol misuse, and vascular risk factors, may mitigate the impact of these conditions on cognitive decline. Mobilization of clinical and community-based interprofessional teams will ensure that people with dementia and their care partners have the expertise, support, and access to resources they need. Addressing goals of care early in the disease course will allow people with dementia to contribute to their care plan by expressing their wishes.

SUMMARY: Developing a structured approach to treating common causes of dementia and related comorbid medical conditions, identifying a local network of interprofessional clinical and community-based referrals, and providing readily available educational resources will help clinicians provide quality dementia care management that extends beyond the clinic visit. Encouraging patients and families to engage in clinical research will advance the identification of effective therapies, preventive strategies, and quality care models for the future.

INTRODUCTION

The management of dementia is complex because the groups of diseases that cause dementia syndromes may lead to a variety of clinical presentations, including memory loss, behavioral changes, communication challenges, safety concerns, and loss of independent function. In addition to the underlying neurodegenerative processes, numerous medical and environmental factors may contribute to cognitive loss and add to the variability of disease presentation. Neurologists, geriatricians, and other physicians caring for patients with dementia are faced with the challenges

CITE AS:

CONTINUUM (MINNEAP MINN)
2022;28(3, DEMENTIA):885-900.

Address correspondence to
Dr Cynthia M. Carlsson, WARF
Bldg, 610 Walnut St, 9th Fl, Ste
957, Madison, WI 53726,
cmc@medicine.wisc.edu.

RELATIONSHIP DISCLOSURE:

Dr Carlsson has received personal compensation in the range of \$500 to \$4999 for serving as a study section reviewer and clinical task force member with the National Institutes of Health/National Institute on Aging. Dr Carlsson has a noncompensated relationship as a chair of the Advisory Council on Alzheimer's Research, Care, and Services with the US Health and Human Services that is relevant to American Academy of Neurology interests or activities. The institution of Dr Carlsson has received research/grant support from the Alzheimer's Association; the Department of Veterans Affairs; the National Institutes of Health/Eisai Co, Ltd; the National Institutes of Health/Lilly; the National Institutes of Health/National Institute on Aging; and the University of Wisconsin Department of Medicine.

UNLABELED USE OF PRODUCTS/INVESTIGATIONAL USE DISCLOSURE:

Dr Carlsson discusses the unlabeled/investigational use of acetylcholinesterase inhibitors for the treatment of Lewy body disease and vascular dementia, antipsychotics in patients with dementia, and memantine in mild Alzheimer dementia for patients who cannot tolerate an acetylcholinesterase inhibitor.

© 2022 American Academy
of Neurology.

of addressing a unique constellation of clinical symptoms and contributing factors in each patient. Development of a structured management approach to common dementia syndromes and frequently co-occurring medical conditions, integrated with the use of a network of key clinical and community-based interprofessional colleagues, can facilitate effective dementia care. Although some clinicians may view their greatest challenge as the correct identification of the underlying neurodegenerative process and appropriate medical therapy, patients and caregivers frequently say the most difficult stage of the disease for them occurs after the diagnosis is given and they leave the clinic. In alignment with established dementia care quality measures,¹ this article describes an approach to managing patients following a diagnosis of dementia, including medical management, nonpharmacologic strategies, safety interventions, caregiver support, mobilization of community resources, and advanced care planning.

MANAGEMENT OF DEMENTIA

A quality dementia management plan can significantly improve the quality of life of patients living with dementia and their care partners. After receiving a dementia diagnosis, patients and families frequently have concerns about future loss of function and independence, the rate of progression, the stigma of a dementia diagnosis in their community, and changing roles with care partners. Involving patients in developing personalized care goals and emphasizing that the clinical team is partnering with them to optimize cognitive function, communication, independence, and safety may help put patients at ease.

A structured management plan for an individual with dementia has several key components, including the following:

- ◆ Recognition and treatment of comorbid medical factors that are contributing to cognitive and behavioral symptoms
- ◆ Facilitation of deprescribing (when possible) of medications with adverse cognitive and behavioral effects
- ◆ Treatment of the underlying neurodegenerative condition (or conditions)
- ◆ Recognition of safety concerns and appropriate interventions
- ◆ Identification of educational, supportive, and resource needs of the patient, caregivers, and others in their support network
- ◆ Mobilization of interprofessional colleagues' expertise and local community resources

Developing a structured approach to treating common causes of dementia and related comorbid medical conditions, identifying a local network of interprofessional clinical and community-based referrals, and collecting readily available educational resources in various formats (eg, web-based, print media, audio) and languages will help clinicians provide quality dementia care management that extends beyond the clinic visit. Examples of clinical, community-based, and educational resources are highlighted in [TABLE 12-1](#). To facilitate adequate reimbursement of comprehensive quality dementia management, in 2018, a new *Current Procedural Terminology (CPT)* code 99483 was created to provide coverage for cognitive assessment and care planning services.² In 2021, Medicare reimbursement rates for these services were increased and expanded to telehealth services.³ These billing changes allow

physicians and advanced practice providers to be reimbursed for the time necessary to coordinate the quality comprehensive dementia care management plans discussed in this article.

Recognition and Treatment of Contributing Comorbid Medical and Environmental Factors

Numerous medical and environmental factors may contribute to cognitive decline and behavioral changes. As highlighted in **CASE 12-1**, identifying and treating key factors that are modifiable may help improve patients' cognitive performance and daily function and reduce caregiver burden. Primary sleep disorders, adverse medication effects, mood disorders, hearing loss, pain, and alcohol misuse are all common factors that contribute to cognitive decline.

PRIMARY SLEEP DISORDERS. Primary sleep disorders such as obstructive sleep apnea (OSA), insomnia, parasomnias, and sleep-related movement disorders can contribute to cognitive decline and have been associated with earlier onset and more rapid progression of neurodegenerative disorders.⁴ OSA is the most common primary sleep disturbance in older adults and is associated with an increased risk of dementia.⁵ Many patients with dementia have comorbid OSA that may be contributing to their cognitive symptoms, in part because of intermittent hypoxia and sleep fragmentation.⁵ Randomized controlled trials support that continuous positive airway pressure (CPAP) treatment in patients with Alzheimer dementia and OSA improves sleep parameters and cognitive function.⁵ However, many patients struggle with tolerating the use of a CPAP machine. Respiratory therapists and psychologists may help patients identify the most appropriate type of mask for them as well as ways to improve adherence to CPAP treatment.

Patients with dementia due to Alzheimer disease frequently experience difficulty remaining asleep at night and staying awake during the day. As highlighted in **CASE 12-1**, disturbed nocturnal sleep, especially when accompanied by agitation, can contribute significantly to caregiver burden and is one of the key factors leading to institutionalization. Nonpharmacologic interventions, such as increasing light in the daytime, regular exercise, and improved sleep hygiene, may significantly improve sleep quality. Parasomnias and sleep-related movement disorders can be associated with α -synuclein disorders, including dementia with Lewy bodies and Parkinson disease dementia. Identifying a network of interprofessional sleep medicine clinicians will help optimize the tailoring of sleep therapies toward the underlying condition with consideration of the degree of cognitive impairment and the ability of the patient to engage in such interventions. Involvement of caregivers in such educational or training sessions may be especially helpful for those with more advanced cognitive loss. However, the burden placed on caregivers to promote adherence to sleep interventions, such as CPAP treatment, at some point may exceed the benefit of the intervention in the full scope of the patient's care and management.

MOOD AND ANXIETY DISORDERS. Mood and anxiety disorders, such as depression, anxiety, and posttraumatic stress disorder (PTSD), are linked to dementia and may interfere with attention, sleep, and concentration.⁶ PTSD may be especially notable in patients who are veterans. Approximately 30% to 40% of people with dementia due to Alzheimer disease have co-occurring depression, frequently

KEY POINTS

- Identification of key clinical and community-based interprofessional partners will help neurologists implement a comprehensive quality dementia care plan that extends beyond the clinic.
- Recognition and treatment of common co-occurring medical problems, such as sleep and mood disorders, adverse medication effects, hearing loss, pain, and alcohol misuse, can significantly improve cognitive performance.
- Obstructive sleep apnea is the most common primary sleep disturbance in older adults, and positive airway pressure treatment improves both sleep parameters and cognitive function in patients with Alzheimer dementia and obstructive sleep apnea.

within the first 3 years of cognitive impairment.⁷ Non-rapid eye movement (REM) sleep is reduced in depression, which may impair episodic memory consolidation.⁷ Querying about substance use is important, as some patients may self-medicate their depression with alcohol or other substances, which in turn could further worsen their mood, sleep quality, and cognitive function. Social isolation, such as that experienced by many during the COVID-19 pandemic, may exacerbate mood disturbances in people with dementia. Being able to distinguish depression from apathy, a behavioral change associated with reduced motivation, is important in identifying the best approach to therapy. Because both dementia and depression contribute to cognitive decline,⁷ it may be difficult to assess which clinical symptom to address first, the cognitive or mood symptoms. Sometimes a stepwise approach to the treatment plan may help clarify the degree to which the mood disorder is contributing to the cognitive decline. Nonpharmacologic approaches focusing on exercise, sleep, avoidance of substance use, and social interaction should be considered first. Antidepressants, such as selective serotonin reuptake inhibitors (SSRIs), may be useful in treating overall neuropsychiatric symptoms, agitation, anxiety, and depression and may improve cognitive function.⁸ Few studies have directly compared various SSRIs

TABLE 12-1 Valuable Interprofessional Resources in Dementia Care Management

Area of concern	Consultative team or agency
Sleep disorders	<p>Sleep clinic physicians and advanced practice providers: address obstructive sleep apnea, insomnia, parasomnias, and sleep-related movement disorders</p> <p>Psychology team: cognitive-behavioral therapy for insomnia, counseling on tips for continuous positive airway pressure (CPAP) adherence</p> <p>Respiratory therapy team: evaluation of CPAP mask fit and type to promote adherence</p>
Behavioral and psychological symptoms of dementia	<p>Geriatric psychiatry, psychology, and other members of the behavioral health team: address challenging behaviors and mood disorders</p> <p>Area Agencies on Aging (eldercare.acl.gov/Public/About/Aging_Network/AAA.aspx) and local caregiver support groups: provide caregiver training and education</p>
Deprescribing	<p>Collaboration with primary care physician, subspecialty care physicians, and pharmacists</p>
Hearing impairment	<p>Audiology consult</p>
Driving safety	<p>Driving safety check with occupational therapy or other community driving screening sites</p> <p>On-the-road testing and/or reporting by independent driving instructors</p> <p>Local transportation services</p>
Falls and gait imbalance	<p>Physical therapy for gait training, strengthening, and gait-assistive devices</p> <p>Occupational therapy for grab bars, shower stools, and other home safety equipment</p>

CONTINUED ON PAGE 889

in older adults to identify which specific agent is most effective and safest to prescribe. In older adults with major depressive disorder, the SSRIs escitalopram and fluoxetine have similar adverse event rates compared to placebo.⁹ Within-class comparisons of escitalopram and sertraline versus fluoxetine showed similar adverse event rates among these SSRIs, although any given outcome was usually based on results from a single trial with few events.⁹ Paroxetine has increased anticholinergic properties and should be avoided in older patients.¹⁰ The serotonin norepinephrine reuptake inhibitors (SNRIs) duloxetine and venlafaxine should be used with caution as they cause adverse events more often than placebo in older adults, including falls.⁹ Although some studies raise questions as to whether antidepressants cause more adverse effects than placebo in patients with dementia, this may be a result of heterogeneity of adverse effects across types of antidepressants evaluated in the studies and in the way adverse events were reported.¹¹ Choosing an antidepressant with fewer anticholinergic properties will reduce adverse effects in older people with dementia.¹⁰ The common phrase to “start low and go slow” is a good reminder for prescribing practices in older adults, including with the use of antidepressant therapies.

CONTINUED FROM PAGE 888

Area of concern	Consultative team or agency
Communication challenges	<p>Speech-language pathologists</p> <p>Area Agencies on Aging and caregiver support groups to provide communication tips</p>
Medication management	<p>Clinic and community-based pharmacists</p> <p>Area Agencies on Aging or other home health aides to set up a pillbox</p> <p>Occupational therapy to identify medication-dispensing devices</p>
General education on dementia and cognitive impairment	<p>National Institute on Aging (nia.nih.gov/health/alzheimers)</p> <p>Alzheimer’s Association (alz.org)</p>
Caregiver support and related community resources	<p>Local Area Agencies on Aging with links to local caregiver support groups (search through Administration on Community Living website: eldercare.acl.gov/Public/index.aspx)</p> <p>Alzheimer’s Association (alz.org)</p> <p>National Institute on Aging (nia.nih.gov/health/alzheimers)</p>
Clinical trial participation	<p>National Institute on Aging (nia.nih.gov/health/alzheimers)</p> <p>National Institute on Aging Alzheimer’s Disease Research Centers Program (nia.nih.gov/health/alzheimers-disease-research-centers)</p> <p>Alzheimer’s Association TrialMatch (alz.org/alzheimers-dementia/research_progress/clinical-trials)</p> <p>ClinicalTrials.gov</p>

HEARING LOSS. Hearing loss affects two-thirds of adults older than 70 years of age and has been associated with an increased risk of dementia, possibly, in part, because of its impact on social isolation and depression.¹² Many times, families find it difficult to distinguish whether someone has hearing impairment or difficulty with comprehension or a combination of both. Assessment of hearing and appropriate treatment with hearing amplification may help improve sensory input and retention of verbal communication. Some people with dementia may have difficulty learning how to insert, maintain, and clean their hearing aids and may frequently misplace them. Encouraging caregivers to be closely involved in assisting patients with hearing aid management and to learn from the audiologist how to properly care for hearing aids may increase success in their proper use and care. Audiologists can help with troubleshooting hearing aid problems and can be a great resource for patients and families.

PAIN. Pain may trigger behavioral disturbance and related-sleep problems. As one of the American Academy of Neurology's dementia care quality measures,¹ assessment of pain and treatment with nonpharmacologic approaches (eg, physical therapy, heat, massage, exercise) as well as pharmacologic approaches (eg, scheduled acetaminophen, topical patches) may help improve movement and sleep quality and reduce agitation. The use of scheduled treatments, instead

CASE 12-1

A 78-year-old woman presented to the behavioral neurology clinic with accelerated cognitive decline over the past 3 months. Four months previously, the patient and her husband presented to her primary care physician describing a 2-year history of gradually progressive forgetfulness with new functional impairment. During her visit with the primary care physician, the patient completed a brief cognitive screen with a Montreal Cognitive Assessment (MoCA) score of 24/30, which indicated mild impairment. Her basic laboratory workup was unremarkable, and brain MRI showed only mild generalized atrophy. Her primary care physician diagnosed the patient with mild dementia due to Alzheimer disease and she was started on donepezil.

Over the 3 months before her current presentation to the behavioral neurology clinic, her husband noticed that she was more confused, had more trouble concentrating, was irritable, and was more somnolent during the day. He became tearful as he described these changes and noted that her decline in function had taken a toll on him, as well. He affirmed that she had been taking the donepezil diligently every night as prescribed.

Her past medical history was significant for hypertension, irritable bowel syndrome, and moderate obstructive sleep apnea, for which she used a continuous positive airway pressure (CPAP) machine nightly.

A repeat MoCA test completed in the neurology clinic that day showed a score of 17/30. During the physical examination, the patient kept dozing off and had difficulty attending to commands. The rest of her physical examination was unremarkable.

of waiting for a patient to ask for pain relief, may help prevent exacerbations of pain.

ALCOHOL MISUSE. Alcohol misuse may trigger sleep problems and depression and may contribute to decreased attention.¹³ Careful assessment of the amount and type of alcohol used and the reason for using it (such as to help with sleep, mood, or just for taste) may help clinicians identify alternate ways to address the underlying condition triggering the alcohol misuse. Clinicians may need to work closely with care partners to reduce access to alcohol in the home.

VASCULAR RISK FACTORS. Vascular risk factors, including midlife hypertension, diabetes mellitus, dyslipidemia, physical inactivity, and obesity, contribute to the onset and progression of Alzheimer and vascular dementias.¹⁴ Although treatment of hypertension may reduce the risk of mild cognitive impairment and the combined outcome of mild cognitive impairment or dementia,¹⁵ it is not clear whether aggressively treating hypertension or other vascular risk factors will beneficially alter the progression of Alzheimer disease or other forms of dementia. Thus, treatment of vascular risk factors in patients with dementia should follow guidelines developed for cardiovascular and cerebrovascular prevention,^{16,17} taking into account patient and family goals of care. Further

Upon further questioning, her husband noted that since starting donepezil she had had an exacerbation of her irritable bowel syndrome with increased diarrhea, causing her to get up 4 to 5 times per night to use the bathroom. She frequently struggled to get her CPAP mask back on, so her husband would get up several times per night and try to help her. In addition, she had restarted intermittent use of her diphenoxylate/atropine to treat her diarrhea symptoms.

Her donepezil was discontinued, her diarrhea improved, and she was able to stop her diphenoxylate/atropine. Over the next few weeks, her sleep improved, and she was able to tolerate wearing her CPAP mask all night again. Her husband noted that her memory and mood were better, and she was more alert and interactive again. He was relieved to be able to get a good night's sleep again. The patient was later started on a low-dose rivastigmine patch, which she tolerated well. Her MoCA score on repeat testing 2 months later was 24/30.

This case illustrates the importance of identifying comorbid medical conditions, including adverse medication effects, that can contribute to symptomatic cognitive decline. In this situation, the patient's donepezil had triggered exacerbation of her irritable bowel syndrome. Her diarrhea had led to interrupted sleep, lack of adherence to CPAP therapy, and the use of an antidiarrheal agent with anticholinergic properties. All of these factors worsened her cognitive function and increased her irritability, contributing to her husband's poor sleep and increased caregiver burden. Addressing these factors led to an improvement in her cognitive performance.

COMMENT

research is needed to clarify whether aggressive treatment of vascular risk factors delays the progression of neurodegeneration.

MEDICATIONS WITH ADVERSE COGNITIVE AND BEHAVIORAL EFFECTS. Adverse medication effects can lead to drowsiness and inattentiveness, sleep disruption, and behavioral disturbance.¹⁰ As highlighted in **CASE 12-1**, other adverse effects, such as nocturia or diarrhea, may inadvertently impact cognitive function via sleep disruption. Having patients bring in all their medications and carefully reviewing them may help clinicians identify therapies with unintended consequences on cognitive performance. The American Geriatrics Society's Beers Criteria for Potentially Inappropriate Medication Use in Older Adults can help clinicians identify which medications may be contributing to patients' cognitive symptoms.¹⁰ Working closely with patients' primary care and other specialty physicians to identify potential alternative therapies with fewer adverse cognitive effects may improve patients' attentiveness and behaviors. Recommendations to primary and specialty care physicians on alternative medication choices may help in identifying agents with fewer anticholinergic or sedating properties that could be substituted for current medications. Common offending medications include benzodiazepines, tricyclic antidepressants, sleeping aids (including nonprescription diphenhydramine in combination therapies with pain medications), bladder antispasmodics, opioid pain medications, medications for vertigo, and skeletal muscle relaxants.^{10,18} Deprescribing is a therapeutic intervention similar to initiating clinically appropriate therapy and should include not only input from other interprofessional clinicians involved in the patient's care but also the patient and caregiver perspectives and preferences on goals of care.¹⁹

Treatment of the Underlying Neurodegenerative Condition(s)

Frequently, dementia is caused by several neurodegenerative pathologies contributing to the underlying clinical presentation of disease.²⁰ Explaining to patients and caregivers the difference between the clinical features of dementia (eg, memory loss, language changes, behavioral concerns) and the underlying brain changes triggering the clinical symptoms (eg, stroke, Alzheimer disease–related amyloid plaques, tauopathy, transactive response DNA-binding protein 43 [TDP-43] proteinopathies) may help patients and members of their support network put into context what they are observing on a day-to-day basis. Explaining mixed pathologies may help someone understand why the patient's symptoms do not fit completely with one diagnosis or another. It may also help explain prognosis and treatment options.

Identifying which prominent clinical features are the target of therapy (eg, cognition, behavior, mood) will help patients and families engage in assessing symptomatic changes. Setting realistic expectations, such as telling patients and families that the medications may slow symptom progression instead of improving cognitive performance, will help them put therapy in its appropriate context.

Acetylcholinesterase inhibitors and the *N*-methyl-D-aspartate (NMDA) antagonist are US Food and Drug Administration (FDA)–approved symptomatic therapies that have been the mainstay of treatment for dementia due to Alzheimer disease and Parkinson disease and are also frequently used off label for dementia with Lewy bodies and vascular dementia. Usually, therapy targeting cognitive symptoms starts with an acetylcholinesterase inhibitor,

assuming the patient does not have significant bradycardia or gastrointestinal disease to warrant a trial of memantine first instead. Gradually titrating the acetylcholinesterase inhibitor dose up based on the prescribing information may reduce adverse effects of gastrointestinal upset, bradycardia, and vivid dreams. Sometimes, altering the timing of the dose of medication may help with vivid dreams. Rivastigmine transdermal therapy may reduce the effects of gastrointestinal symptoms. Memantine is FDA approved for use in moderate to severe Alzheimer dementia but is sometimes used off-label in mild Alzheimer dementia when a patient cannot tolerate an acetylcholinesterase inhibitor. Kidney dysfunction may necessitate a reduction in the dose of memantine. As symptoms progress, combination therapy with an acetylcholinesterase inhibitor plus memantine may provide some mild additional benefit. Later in the disease course, clinicians and families may choose to stop acetylcholinesterase inhibitors and the NMDA antagonist based on a lack of perceived benefit and overall status of the individual's quality of life. Such decisions may include discussions on quality-of-life factors, such as how engaged a patient is with self-care, behavioral symptoms, cost of the medications, and difficulty swallowing.

In dementias with prominent behavioral changes, initial management should focus on the use of nonpharmacologic therapies. Development of a daily routine, including regular wake and sleep cycles, exercise, and reduction of sensory overstimulation may help patients with dementia feel more secure and less agitated. Caregiver training tools that help them identify triggering factors for the behavioral disturbances may help caregivers redirect patients and avoid escalation into crisis situations. Other mood disturbances or behaviors such as depression or anxiety may require medical therapy, such as with SSRIs or other mood stabilizers. Low-dose antipsychotics should be reserved for people with significant agitation that threatens their safety or living situation and that does not respond to nonpharmacologic approaches because these medications have an FDA boxed warning of increased risk of stroke and death in patients with dementia.²¹ Understanding the side effect risk profile of these agents may help clinicians identify therapies with fewer sedating or agitating side effects. Consultants in geriatric psychiatry and psychology can help neurologists manage patients with complex behavioral and psychological symptoms of dementia. In addition, the identification of community partners with expertise in training and supporting caregivers is important to giving care partners the tools they need to de-escalate episodes of agitation.

Trends

Although current dementia quality care standards focus on symptom management and caregiver support, care management plans in the future will look significantly different as disease-modifying therapies, such as anti-amyloid drugs, are developed and integrated into widespread clinical practice. Neuroimaging and biofluid biomarkers will be used to identify the underlying causes of the dementia and to monitor treatment response and safety parameters. Future treatments may be started earlier during the stage of disease before symptom onset, with the goal of preserving cognitive function.

The FDA's approval of aducanumab for use in mild cognitive impairment or mild dementia due to Alzheimer disease has accelerated lively discussions on controversies surrounding the approval process itself and how to best implement

KEY POINTS

- Treating depression with nonpharmacologic and pharmacologic therapies may improve mood, agitation, and cognition in select patients with dementia.
- Vascular risk factors contribute to the onset and progression of Alzheimer and vascular dementia, but it is not clear whether aggressively treating vascular risk factors will beneficially alter the progression of the clinical symptoms of dementia.
- Deprescribing is an important therapeutic intervention similar to initiating clinically appropriate therapy and should be done in collaboration with the patient, care partner, and other clinical care providers.
- US Food and Drug Administration–approved acetylcholinesterase inhibitors and the *N*-methyl-D-aspartate (NMDA) antagonist have been the mainstay of treatment for dementia, although disease-modifying therapies may soon be used in widespread clinical practice.

anti-amyloid therapies into clinical practice. Clinical efficacy questions specific to aducanumab have arisen as the EMERGE (221AD302 Phase 3 Study of Aducanumab [BIIB037] in Early Alzheimer's Disease) and ENGAGE (221AD301 Phase 3 Study of Aducanumab [BIIB037] in Early Alzheimer's Disease) trials did not conclusively demonstrate cognitive and functional benefits of aducanumab despite showing a reduction in amyloid burden.^{22,23} These preliminary findings have led some experts to question whether aducanumab should be prescribed at all at this point in time,²⁴ whereas others support aducanumab's approval as a first step to pave the way for other anti-amyloid therapies.²⁵ An additional concern is that participants included in the EMERGE and ENGAGE trials had vastly different clinical characteristics than Medicare beneficiaries and very few participants were Black, Hispanic/Latino, or American Indian despite these communities having a higher dementia prevalence.²⁶ Therefore, physicians choosing to carefully use the inclusion and exclusion criteria from these studies to select which of their patients would be best suited for aducanumab therapy will be very limited in which of their patients will be eligible for treatment. These clinical selection processes will then further exacerbate health disparities.

In January 2022, the Centers for Medicare & Medicaid Services released its preliminary National Coverage Determination stating that it would cover aducanumab and all future FDA-approved anti-amyloid therapies through coverage with evidence development, meaning that all drugs in this class would be covered for people with Medicare only if they are enrolled in qualifying clinical trials. Although some scientists and clinicians welcomed this additional opportunity to gather safety and efficacy data on aducanumab, other stakeholders strongly disagreed with the decision as the coverage with evidence development meant that access to this new class of treatments would be limited. The updated recommendations from the Centers for Medicare & Medicaid Services released in April 2022 did not substantially change the decision released in January regarding the restricted coverage for aducanumab but did indicate that each new anti-amyloid antibody would be evaluated on its own merit.²⁷

Although approval of aducanumab has generated plenty of controversy, it has also accelerated important conversations, including the development of appropriate use criteria and approaches to discussing therapeutic goals with patients and families.²⁸ Cost and payment structures surrounding not only the cost of anti-amyloid drugs but also the related biomarker assessments, the infusion charges, personnel, and MRI and symptom monitoring will require ongoing discussion and review by the Centers for Medicare & Medicaid Services and insurance companies. Medicare premiums have increased for 2022 in response to increased costs anticipated with the use of aducanumab.²⁹ Health care systems are reviewing their capacity to support the infrastructure needed for safe administration and monitoring of anti-amyloid infusion therapies. Such infrastructure includes diverse community access to infusion centers and to amyloid biomarkers, including positron emission tomography (PET), CSF, and blood-based biomarkers. Other health care system infrastructure components include development and implementation of appropriate use review panels and safety protocols for monitoring symptoms and MRI-based amyloid-related imaging abnormalities (ARIA). Drugs such as donanemab and lecanemab are in the pipeline to have data reviewed by the FDA in the coming year, and others are likely to

follow. The important discussions and infrastructure development prompted by the controversial approval of aducanumab will pave the way for clinicians to use future anti-amyloid therapies effectively and safely in their patients.

Recognition of Safety Concerns and Appropriate Interventions

As featured in **CASE 12-2**, key safety concerns for people with dementia include driving safety, medication management, falls, kitchen safety, wandering, and firearm use. Patients with dementia may develop impairments in attention, visuospatial skills, and memory and may exhibit poor impulse control and decreased insight, which could significantly impact their ability to safely operate a motor vehicle. The Trail Making Test and Clock Drawing Test have been shown to predict difficulty with driving; however, an on-the-road driving evaluation is still considered the gold standard assessment of whether a person with dementia is “safe” to drive.³⁰ Clinicians should be aware of the driving reporting requirements in their state for patients with dementia. In some cases, patients may benefit from having driving restrictions placed, such as limiting driving to low-traffic areas during the day within a certain mile radius from their home. The combination of clinical symptoms patients exhibit may impact recommendations for their driving safety. Individuals with impairment in memory alone may need to use a Global Positioning System (GPS) or have a navigator drive with them to prevent getting lost. People with deficits in attention may need to keep the radio off and not talk while driving. People with poor impulse control or poor visuospatial skills, however, may need to stop driving despite relatively preserved memory function. As highlighted in **CASE 12-2**, decisions on fitness to drive need to be made in the context of other comorbid conditions, such as visual loss, weakness, arthritis, or other factors influencing reaction time. Some patients may highlight their excellent driving records to the clinician, so clinicians may need to emphasize that any imposed driving restrictions are not meant to reflect negatively on their prior skills and cautiousness but are chiefly the result of new changes in their brain and physical health. Referral to occupational therapy or other clinic or community-based sites with driving screening instruments may help identify which patients need further evaluation by a driving specialist. Some interventions may help maintain driving performance among individuals with dementia.³⁰ Identifying transportation options for patients and families through transit and other ride services, friends/family, and other volunteer organizations may help prevent social isolation while protecting the individual’s and the public’s safety.

Other significant safety concerns include errors in medication management because they can lead to numerous adverse effects, such as hypotension, hypoglycemia, falls, dehydration, and arrhythmias, among many others. As highlighted in **CASE 12-2**, establishing a clear system for ordering medications; filling a weekly pillbox; checking regularly for medication adherence; and integrating alarms, phone calls, and other reminder systems may help patients stay on track with medication adherence. Occupational therapy teams have a variety of pill-dispensing devices and other technologies to assist with reminding patients to take their medications. Caregivers or home health aides may help set up pillboxes for patients.

Many patients with dementia are at higher risk for falls because of their decreased attention to their surroundings. Some dementias, such as dementia due to Parkinson disease or progressive supranuclear palsy, are associated with

KEY POINT

● Key safety concerns for people with dementia, including driving, medication management, falls, kitchen safety, wandering, and firearm use, should be assessed on a regular basis, and care partners should develop management plans in conjunction with both the clinical and community-based interprofessional teams.

CASE 12-2

An 82-year-old man with mixed dementia due to stroke and Alzheimer disease presented to neurology clinic with his niece for evaluation of increased behavioral concerns. His niece was distressed because the patient had gotten lost while driving a few days earlier and spent the night in his car in a gas station parking lot 3 hours away from his home. He continued to drive despite having his driver's license revoked several months earlier. He was fiercely independent and still lived alone in his own home. The patient maintained decisional capacity and had refused to move to assisted living or allow home health aides to assist him. Despite his niece coming over weekly to clean and set up his pillbox, his house was dirty and cluttered and he was starting to make medication errors. He had occasionally doubled up on his antihypertensive agents and started having frequent falls. His hygiene was declining, and he was refusing to take showers. His niece was exhausted caring for him; she worked part-time and was dependent on that income to make ends meet. She was her uncle's only living relative and really wanted to do more for him.

The clinic team referred the patient's niece to a local Area Agency on Aging, which helped her enroll in a paid caregiver program. With this additional income, she was able to quit her part-time job, move out of her apartment, and move into her uncle's home to care for him. The clinic team provided her with educational material on caring for someone with dementia and referred her to caregiver support groups. There, she learned tips on how to keep him from driving and how to coax him to shower more regularly. He took his medications regularly and stopped falling. The niece engaged a neighbor who was an emergency medical technician to come over 2 times a week to visit with her uncle while she did errands. She asked a friend of his to drive him to a weekly breakfast with other men from his church. His distressing behaviors improved, and he was able to stay in his own home.

COMMENT

This case illustrates the impact the clinical team can have by providing education to caregivers and referrals to key community resources. Connecting the niece with a paid caregiver program proved critical in mobilizing the resources she needed to provide care for her uncle. Without such an intervention, the patient may have had a fall with injury, prompting a nursing home stay or permanent placement. By mobilizing community resources, enlisting the help of friends and neighbors, and implementing caregiving tips, the patient and his niece were able to find a solution to his living situation that kept him safe and healthy and honored his wishes to stay in his own home.

an even higher risk of gait disturbance and falls. Physical therapy may be helpful in some situations, but inclusion of the caregiver is often necessary for the patient to remember how to do strengthening exercises. Gait assistive devices, such as wheeled walkers, may be helpful in some patients to promote continued exercise and mobility while preventing falls. Grab bars, toilet risers, and other home safety equipment may also help prevent falls. Referral to occupational and physical therapy is a key clinical resource for fall prevention.

Kitchen safety, such as fire risk from leaving the burner on, can be addressed by unplugging the stove or encouraging the use of a microwave or hot pot. Frequent checking of perishable food items will ensure that food has not spoiled and is safe for eating. Wandering outside in inclement weather can lead to heat illness or hypothermia. The use of distracting items in front of doors, such as plants or chairs, can help redirect patients away from exiting while still allowing escape during a fire or other emergency. Bells or alarms placed on doors can alert caregivers when the patient is leaving the home. The use of GPS devices and applications on mobile phones or other related devices can help identify patients who get lost outside. Registering a person with dementia with the local police department and having them wear a medical emergency alert bracelet or necklace with contact information will help foster identification of the individual and a safe return home.

Although an estimated 39% to 49% of older adults live in a home with firearms, the proportion of older adults with dementia who have access to firearms varies widely in differing study sample populations.^{31,32} Patients with dementia may forget details of safety protocols in hunting contexts. Visual hallucinations or lack of recognition of a family member could prompt the patient to think an intruder is in the home and lead to inappropriate use of a firearm. Counseling prompts on safe firearms storage (eg, keeping firearms locked and unloaded with ammunition stored separately from the weapon) and removal of firearms from the household are key in optimizing safety for patients with dementia and their families.³²

Educational, Supportive, and Resource Needs of the Patient, Caregivers, and Others in Their Support Network

Given the progressive nature of most dementias, it is critical to identify early in the disease the patient's social support network, which may include a spouse, partner, adult child, neighbor, friend, local banker, and/or landlord.

Understanding racial, ethnic, and other cultural community perspectives on dementia, aging, and care for older adults will help identify how to best partner with members of the patient's support network to develop a comprehensive management plan. Early identification of a primary and secondary agent for health care power of attorney will facilitate decisions in care management should the individual with dementia progress and lose decision-making capacity.

Development of financial power of attorney documents and addition of family members' names to existing financial accounts can help people with dementia maintain involvement in financial decisions while protecting them from financial scams. Engaging patients with dementia early in establishing goals of care while they can contribute to shared decision making is critical. Advanced care planning should be discussed early in the disease process and revisited frequently as the dementia progresses.³³ Decisional capacity should be assessed at regular intervals. Although families may initially want to keep a person with dementia in their own

KEY POINT

● Engaging patients with dementia early in establishing goals of care while they can contribute to shared decision making and advanced care planning is critical.

home, sometimes the progression of illness, behavioral changes, and external circumstances may necessitate moving a patient into a care facility. Caregivers frequently feel guilty about these decisions and may need support and affirmation from clinic teams, family, friends, and caregiver support groups during these transitions.

Although some patients and families have a good sense of the meaning of a dementia diagnosis, many only have pieces of information from disparate sources, such as friends, the internet, and media portrayal. Many people confuse the terms *dementia* and *Alzheimer disease*, so carefully telling them what they may and may not have can be important. For example, a patient may be told they have mild cognitive impairment due to Lewy body disease but then leave the physician's office wondering if they have Alzheimer disease or dementia because they were not told they did not have those conditions. Having readily available educational materials, website links, and in-person educational session information will help tailor educational approaches to health literacy levels, preferred forms of learning, and culturally appropriate contexts. Identifying resources in Spanish and other common languages will facilitate culturally aligned communication. Examples of sources for educational materials are shown in **TABLE 12-1**.

Establishing a routine and structure can help patients with dementia stay more functional and independent. Using reminders, calendars, and alarms can help individuals keep up with tasks, medications, and appointments. However, at some point, patients may forget to look at reminders or know what an alarm signifies. It is important to get a good sense of the individual's ability to use such devices. For example, if a patient wears a medical emergency alert device but cannot remember to press the button, then the device may provide a false sense of security to the family.

Mobilization of Interprofessional Colleagues' Expertise and Local Community Resources

Inclusion of individuals from patients' support networks in their care plan is critical to optimizing the patient's function and adherence to pharmacologic and nonpharmacologic therapies. Access and use of caregiver education materials, local caregiver support groups and education sessions, and respite services can help caregivers maintain their own health and the stamina needed to serve as a care partner. Many primary and specialty care clinical teams underutilize important community-based resources for dementia care and caregiver support. Clinicians should identify a key community-based point of contact for caregivers, which could be a local agency on aging, a local dementia support team, or a centralized resource such as the Alzheimer's Association website or helpline (**TABLE 12-1**). Every caregiver should leave the clinic with a community-based point of contact for caregiver resources to help them in their day-to-day activities and challenges they face after leaving the clinic. They should be encouraged to contact that agency to find out what resources they have available as a starting point of communication. As highlighted in **CASE 12-2**, such access to dementia support resources can prove vital in maintaining the health of people with dementia and their caregivers' quality of life. Clinic social workers and local community agencies can connect caregivers with important resources such as home health, ride services, bath aides, meal delivery services, friendly visitor volunteers, adult day centers, and paid family caregiver

programs. As the person with dementia progresses, palliative care and hospice care teams can help tailor interventions to those that optimize patient comfort and quality of life.

CONCLUSION

Developing a quality management plan for people with dementia involves early identification of patient goals, engagement with care partners and other community supports, and mobilization of clinical and community-based interprofessional teams. Identifying key educational materials and encouraging care partners to contact a local Area Agency on Aging (eldercare.acl.gov/Public/About/Aging_Network/AAA.aspx) or other similar resources will help care partners develop a community-based network that can assist in implementing pharmacologic and nonpharmacologic care plans through support of the caregiver. Clinicians should encourage patients and families to consider engaging in clinical research to advance dementia treatment and prevention strategies, care delivery models, and caregiver support programs. Through such research efforts, advances will be made in the early diagnosis of dementia, effective treatment, and optimal care management approaches across diverse communities.

KEY POINT

● Identifying basic educational resources, a point of contact for a local Area Agency on Aging, and local caregiver support groups will facilitate support of the patient and caregiver outside of the clinic setting.

REFERENCES

- Schultz SK, Llorente MD, Sanders AE, et al. Quality improvement in dementia care: Dementia Management Quality Measurement Set 2018 Implementation Update. *Neurology* 2020;94(5): 210-216. doi:10.1212/WNL.00000000000008678
- Alzheimer's Association. Cognitive assessment and care planning services: Alzheimer's Association expert task force recommendations and tools for implementation. Accessed April 5, 2022. alz.org/careplanning/downloads/cms-consensus.pdf
- Centers for Medicare & Medicaid Services. Physician fee schedule look-up tool. Accessed April 5, 2022. cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PFSlookup
- Benca R, Teodorescu M. Sleep physiology and disorders in aging and dementia. *Handb Clin Neurol* 2019;167:477-493. doi:10.1016/B978-0-12-804766-8.00026-1
- Bubu OM, Andrade AG, Umasabor-Bubu OQ, et al. Obstructive sleep apnea, cognition and Alzheimer's disease: a systematic review integrating three decades of multidisciplinary research. *Sleep Med Rev* 2020;50:101250. doi:10.1016/j.smrv.2019.101250
- Kuring JK, Mathias JL, Ward L. Risk of dementia in persons who have previously experienced clinically-significant depression, anxiety, or PTSD: a systematic review and meta-analysis. *J Affect Disord* 2020;274:247-261. doi:10.1016/j.jad.2020.05.020
- Mendez MF. Degenerative dementias: alterations of emotions and mood disorders. *Handb Clin Neurol* 2021;183:261-281. doi:10.1016/B978-0-12-822290-4.00012-8
- Hsu T-W, Stubbs B, Liang C-S, et al. Efficacy of serotonergic antidepressant treatment for the neuropsychiatric symptoms and agitation in dementia: a systematic review and meta-analysis. *Ageing Res Rev* 2021;69:101362. doi:10.1016/j.arr.2021.101362
- Sobieraj DM, Baker WL, Martinez BK, et al. Adverse effects of pharmacologic treatments of major depression in older adults. Agency for Healthcare Research and Quality (US); March 2019 Report No: 19-EHC011-EF.
- American Geriatrics Society Beers Criteria Update Expert Panel. American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc* 2019;67(4): 674-694. doi:10.1111/jgs.15767
- Dudas R, Malouf R, McCleery J, Dening T. Antidepressants for treating depression in dementia. *Cochrane Database Syst Rev* 2018; 8(8):CD003944. doi:10.1002/14651858.CD003944.pub2
- Chern A, Golub JS. Age-related hearing loss and dementia. *Alzheimer Dis Assoc Disord* 2019;33(3): 285-290. doi:10.1097/WAD.0000000000000325

13 Sullivan EV, Pfefferbaum A. Brain-behavior relations and effects of aging and common comorbidities in alcohol use disorder: a review. *Neuropsychology* 2019;33(6):760-780. doi:10.1037/neu0000557

14 Iadecola C, Duering M, Hachinski V, et al. Vascular cognitive impairment and dementia: JACC Scientific Expert Panel. *J Am Coll Cardiol* 2019;73(25):3326-3344. doi:10.1016/j.jacc.2019.04.034

15 SPRINT MIND Investigators for the SPRINT Research Group; Williamson JD, Pajewski NM, et al. Effect of intensive vs standard blood pressure control on probable dementia: a randomized clinical trial. *JAMA* 2019;321(6):553-561. doi:10.1001/jama.2018.21442

16 Furie K. Epidemiology and primary prevention of stroke. *Continuum (Minneap Minn)* 2020; 26(2, Cerebrovascular Disease):260-267. doi:10.1212/CON.0000000000000831

17 Kleindorfer DO, Towfighi A, Chaturvedi S, et al. 2021 Guideline for the Prevention of Stroke in Patients With Stroke and Transient Ischemic Attack: a guideline from the American Heart Association/American Stroke Association. *Stroke* 2021;52(7):e364-e467. doi:10.1161/STR.0000000000000375

18 Fralick M, Bartsch E, Ritchie CS, Sacks CA. Estimating the use of potentially inappropriate medications among older adults in the United States. *J Am Geriatr Soc* 2020;68(12):2927-2930. doi:10.1111/jgs.16779

19 Halli-Tierney AD, Scarbrough C, Carroll D. Polypharmacy: evaluating risks and deprescribing. *Am Fam Physician* 2019;100(1):32-38.

20 Boyle PA, Yu L, Leurgans SE, et al. Attributable risk of Alzheimer's dementia attributed to age-related neuropathologies. *Ann Neurol* 2019;85(1):114-124. doi:10.1002/ana.25380

21 Yunusa I, Alsumali A, Garba AE, et al. Assessment of reported comparative effectiveness and safety of atypical antipsychotics in the treatment of behavioral and psychological symptoms of dementia: a network meta-analysis. *JAMA Netw Open* 2019;2(3):e190828. doi:10.1001/jamanetworkopen.2019.0828

22 ClinicalTrials.gov. 221AD302 Phase 3 Study of Aducanumab (BIB037) in Early Alzheimer's Disease (EMERGE). Accessed April 5, 2022. clinicaltrials.gov/ct2/show/NCT02484547

23 ClinicalTrials.gov. 221AD301 Phase 3 Study of Aducanumab (BIB037) in Early Alzheimer's Disease (ENGAGE). Accessed April 5, 2022. clinicaltrials.gov/ct2/show/NCT02477800

24 Knopman DS, Jones DT, Greicius MD. Failure to demonstrate efficacy of aducanumab: an analysis of the EMERGE and ENGAGE trials as reported by Biogen, December 2019. *Alzheimers Dement* 2021;17(4):696-701. doi:10.1002/alz.12213

25 Sabbagh MN, Cummings J. Open Peer Commentary to "Failure to demonstrate efficacy of aducanumab: an analysis of the EMERGE and ENGAGE Trials as reported by Biogen December 2019." *Alzheimers Dement* 2021;17:702-703. doi:10.1002/alz.12235

26 Anderson TS, Ayanian JZ, Souza J, Landon BE. Representativeness of participants eligible to be enrolled in clinical trials of aducanumab for Alzheimer disease compared with Medicare beneficiaries with Alzheimer disease and mild cognitive impairment. *JAMA* 2021;326(16):1627-1629. doi:10.1001/jama.2021.15286

27 Centers for Medicare & Medicaid Services. Monoclonal antibodies directed against amyloid for the treatment of Alzheimer's disease. Accessed May 4, 2022. [cms.gov/medicare-coverage-database/view/ncacal-decision-memo.aspx?proposed=N&ncid=305&fromTracking=Y&](https://www.cms.gov/medicare-coverage-database/view/ncacal-decision-memo.aspx?proposed=N&ncid=305&fromTracking=Y&)

28 Cummings J, Aisen P, Apostolova LG, et al. Aducanumab: appropriate use recommendations. *J Prev Alzheimers Dis.* 2021; 8(4):398-410. doi:10.14283/jpad.2021.41

29 Centers for Medicare and Medicaid Services. Centers for Medicare and Medicaid Services (CMS) fact sheet on 2022 Medicare Parts A & B premiums and deductibles/2022 Medicare Part D income-related monthly adjustment amounts. Accessed April 5, 2022. [cms.gov/newsroom/fact-sheets/2022-medicare-parts-b-premiums-and-deductibles2022-medicare-part-d-income-related-monthly-adjustment](https://www.cms.gov/newsroom/fact-sheets/2022-medicare-parts-b-premiums-and-deductibles2022-medicare-part-d-income-related-monthly-adjustment)

30 Carr DB, Stowe JD, Morris JC. Driving in the elderly in health and disease. *Handb Clin Neurol* 2019;167:563-573. doi:10.1016/B978-0-12-804766-8.00031-5

31 Betz ME, Azrael D, Johnson RL, et al. Views on firearm safety among caregivers of people with Alzheimer disease and related dementias. *JAMA Network Open* 2020;3(7):e207756. doi:10.1001/jamanetworkopen.2020.7756

32 Doucette ML, Dayton H, Lapidus G, et al. Firearms, dementia, and the clinician: development of a safety counseling protocol. *J Am Geriatr Soc* 2020; 68(9):2128-2133. doi:10.1111/jgs.16450

33 Piers R, Albers G, Gilissen J, et al. Advance care planning in dementia: recommendations for healthcare professionals. *BMC Palliat Care* 2018; 17(1):88. doi:10.1186/s12904-018-0332-2