

CHAPTER 17—DEMENTIA

EPIDEMIOLOGY AND SOCIETAL IMPACT

GENETIC AND OTHER RISK FACTORS

DIFFERENTIAL DIAGNOSIS OF DEMENTIA

ASSESSMENT METHODS

AGITATION

TREATMENT AND MANAGEMENT

ANNOTATED REFERENCES

Dementia is a general term used to describe significant decline in two or more areas of cognitive functioning. It is the most common cause of mental decline in old age. Of those who suffer from dementia, most have Alzheimer's disease (AD), which affects an estimated 4 million people in the United States. Epidemiologic projections estimate that by 2040 approximately 14 million Americans will suffer from AD. The pain and anguish of the disorder also afflicts millions more caregivers and relatives, who must cope with the patient's progressive and irreversible decline in cognition, functioning, and behavior. Both caregivers and patients may misinterpret initial symptoms of AD as normal age-related cognitive losses, and physicians may not recognize early signs or may misdiagnose them. However, dementia and aging are not synonymous. As people age, they usually experience such memory changes as slowing in information processing, but these kinds of changes are benign. By contrast, dementia is progressive and disabling and not an inherent aspect of aging. (See [Table 17.1](#).)

Diagnostic and treatment advances have benefited many patients. Early and accurate diagnosis of AD may minimize costly medical resource use and give patients and their relatives time to anticipate future medical, financial, and legal needs. Reversal of the progressive cognitive decline of AD is not currently possible, but pharmacologic and psychosocial treatments may improve such associated conditions as depression, psychosis, and agitation. Medications are available that may produce cognitive improvement in many patients. (See also [Psychosocial Issues](#), [Legal and Ethical Issues](#), [Financing, Coverage, and Costs of Health Care](#).)

EPIDEMIOLOGY AND SOCIETAL IMPACT

Dementia is a disease of late life, generally beginning after age 60 years, although in rare cases AD may begin as early as age 30. AD has a gradual onset and continuous progression, and on average patients live from 8 to 10 years after the symptoms begin. The prevalence of AD varies, depending on the age of persons sampled, the particular diagnostic definition for cases, and the methods used to assess patients. For the age group 65 years and older, the prevalence of AD approximates 6% to 8%. The disease prevalence doubles every 5 years after age 60; an estimated 30% or more of those who are aged 85 or older have AD.

In one study of primary care physicians' knowledge of dementia, only 40% knew that the most common cause of dementia in older persons is AD. Prevalence studies of community samples also detect many undiagnosed cases. Physicians often apply a dementia diagnosis incorrectly by diagnosing the condition when it is not present or overlooking it when it is. Such errors may result from a lack of attention to cognitive functioning during medical screening examinations or a lack of knowledge about the normal aging process.

Dementia has a major impact on society. The total costs approach \$100 billion annually if the costs of medical and long-term care, home care, and lost productivity for caregivers are included. Much of the direct cost is paid by Medicare, Medicaid, and private insurance, but families caring for patients with dementia must bear the greatest burden of expense.

The financial costs of dementia are only one aspect of the total burden. The emotional toll is immense for both patients and their families. Nearly half of primary caregivers of patients with dementia experience psychological distress, particularly depression. An accurate economic assessment of the problem underestimates the true cost of the disease to society unless the quality of life of both patients and caregivers is included in the analysis.

GENETIC AND OTHER RISK FACTORS

The two greatest risk factors for AD are age and family history. Studies that account for death from other causes suggest that by age 90 years, nearly half of persons with first-degree relatives (ie, parents, siblings) with AD develop the disease themselves. For the rare forms of familial AD beginning before age 60, genetic mutations on chromosomes 1, 14, and 21 are the cause. More commonly, AD begins late in life; for such late-onset cases, the apolipoprotein E gene (*APOE*) on chromosome 19 influences risk.

The *APOE* gene has three alleles, *APOE**2, *APOE**3, and *APOE**4. Everyone inherits one allele from each parent, so that six common genotypes are possible (2/2, 2/3, 3/3, 2/4, 3/4, and 4/4). Approximately 3% of the general population has the 4/4 genotype, 20% has the 3/4 genotype, and most persons have the 3/3 genotype. The *APOE**4 allele increases risk and decreases dementia onset age in a dose-related fashion, whereas the *APOE**2 allele may have a protective effect. Thus, the 2/3 genotype has a lower risk for AD than the 3/4 genotype; the AD risk is higher for the 3/4 genotype, and highest for the 4/4 genotype. The *APOE**4 allele may be less common in black Americans.

Using *APOE* genotyping as a prognostic test for asymptomatic persons is not recommended until results from further studies are available. *APOE**4 is neither necessary nor sufficient to cause AD, and cognitively normal centenarians who are homozygous for *APOE**4 have been reported. The asymptomatic person who learns that his or her genotype is 3/3 or 2/3 may be falsely reassured, whereas the person who learns that his or her genotype is 3/4 may be falsely alarmed. *APOE* genotyping may be useful in increasing the likelihood of a diagnosis of AD if a patient already has dementia.

Other genetic risk factors are likely since familial aggregation is present in families without *APOE**4. Other reported risk factors include a previous head injury, female sex, and fewer years of educational achievement. Possible protective factors include the use of estrogen replacement therapy after menopause and nonsteroidal anti-inflammatory drugs. [Table 17.2](#) lists both risk and protective factors for AD.

DIFFERENTIAL DIAGNOSIS OF DEMENTIA

Dementia can be defined as an acquired syndrome of decline in memory and other cognitive functions sufficient to affect daily life in an alert patient. AD accounts for approximately two thirds of all cases, and vascular dementia causes an estimated 15% to 25%. In recent years dementia associated with Lewy bodies (DLB) has received increased attention. For a diagnosis of DLB, both dementia and at least one of the following must be present: detailed visual hallucinations, parkinsonian signs, and alterations of alertness or attention. A diagnosis of DLB may overlap with AD and the dementia associated with Parkinson's disease.

AD is characterized by gradual onset and progressive decline in cognitive functioning; motor and sensory functions are spared until late stages. Memory impairment is a core symptom of any dementia, and in AD it is present in the earliest stages. Typically, AD patients demonstrate difficulty learning new information and retaining it for more than a few minutes. In later disease stages their ability to learn shows even greater compromise, and patients are unable to access older, more distant memories. Aphasia, apraxia, disorientation, visuospatial dysfunction, and impaired judgment and executive functioning are also present. (See [Table 17.3](#) for the *DSM-IV* diagnostic criteria.)

The cognitive impairment of dementia eventually has a profound effect on the patient's daily life. Difficulties in planning meals, managing finances or medications, using a telephone, and driving without getting lost are not uncommon. Such functional impairments may first alert others that a problem is emerging. Numerous functions are maintained in patients with AD of mild to moderate severity, including such activities of daily living as eating, bathing, and grooming. Many patients remain socially appropriate during the early disease stages.

Behavior and mood changes are common, including personality alterations, irritability, anxiety, or depression. During the middle and late stages of the disease, delusions, hallucinations, aggression, and wandering may develop. These behaviors are extremely troubling to caregivers and often result in family distress and nursing-home placement. Although the course of AD is variable, the progression of AD often follows a sequential clinical and functional pattern of decline (see [Table 17.4](#)).

Dementia recognition may be complicated by the presence of either delirium or depression. Delirium has been defined as a syndrome of acquired impairment of attention, alertness, and perception. Delirium and dementia are in some ways similar: both are characterized by global cognitive impairment. Delirium can be distinguished by an acute onset, cognitive fluctuations throughout the course of a day, impaired

consciousness and attention, and altered sleep cycles. In hospitalized patients, delirium and dementia often occur together. The presence of dementia increases the risk for delirium and accounts in part for the high rate of delirium in elderly patients. A delirium episode in an older person, therefore, should alert the clinician to search for dementia once the delirium clears, if cognitive impairment persists. (See also [Delirium](#).)

Symptoms of depression and dementia often overlap, presenting additional diagnostic challenges. Patients with primary dementia commonly experience symptoms of depression, and such patients may minimize cognitive losses. By contrast, patients with primary depression may demonstrate decreased motivation during the cognitive examination and express cognitive complaints that exceed objectively measured deficits. Patients with primary depression, moreover, usually have intact language and motor skills, whereas patients with primary dementia may show impairment in these domains. As many as half of elderly patients who present with reversible dementia and depression become progressively demented within 5 years. (See also [Depression and Other Mood Disorders](#).)

ASSESSMENT METHODS

Consensus guidelines maintain that the diagnosis of AD must be primarily one of inclusion, not exclusion, as is often supposed. Most cases of AD can be diagnosed on the basis of a general medical and psychiatric evaluation. It is important for primary care physicians to be alert to early symptoms of AD. If a patient or family member expresses concerns about cognitive decline, a mental status assessment and probably a dementia evaluation are indicated.

The informant interview and office-based clinical assessment are the most important diagnostic tools for dementia. Both the patient and a reliable informant should be interviewed to determine the patient's current condition, medical and medication history, patterns of alcohol use, and living arrangements. Useful informant-based instruments, such as the Functional Activities Questionnaire (see the [Appendix](#)), can help determine lapses in memory and language use, the ability to learn and retain new information, handle complex tasks, and demonstrate sound judgment. Any changes should be compared with previous performance, since functional decline and multiple cognitive deficits confirm the diagnosis.

A comprehensive physical examination should include a brief neurologic and mental status evaluation. Brief quantified screening tests of cognitive function, such as Folstein's Mini-Mental State Examination ([MMSE](#); see the [Appendix](#)), and a laboratory evaluation, generally including a complete blood cell count, blood chemistries, liver function tests, a serologic test for syphilis, and thyrotropin and vitamin B₁₂ levels, are also recommended. In addition, the history or physical examination may indicate the need for other laboratory tests.

Although brain imaging studies are optional, they are commonly recommended by specialists ([Table 17.5](#)). They should be ordered if

- onset occurs at an age below 65 years;
- the condition is postacute, that is, symptoms have occurred for less than 2 years;
- neurologic signs are asymmetric; or
- the clinical picture suggests normal-pressure hydrocephalus, that is, if onset has occurred within 1 year, gait disorder is present, unexplained incontinence is present.

In general, a noncontrast computed tomography head scan is adequate to rule out space-occupying lesions and hydrocephalus. If vascular dementia is suspected, magnetic resonance imaging (MRI) is often performed, but white matter changes revealed by T2 weighted MRI images generally are not related to dementia and should not be overinterpreted. In cases of unclear diagnosis, a repeat assessment in 6 months will confirm the presence or absence of progressive cognitive decline. Functional brain imaging studies such as positron emission tomography often show the characteristic parietal and temporal deficits in AD or the widespread irregular deficits in vascular dementia and may be useful when the diagnosis is uncertain after routine testing.

The MMSE is influenced by prior educational level, wherein affected patients with greater years of educational achievement may show normal scores. By contrast, elderly patients with lower levels of educational achievement may have low MMSE scores and no decline in function. The practical utility of cognitive measures is that they provide a quantitative baseline against which to compare future

assessments. Neuropsychologic testing is sometimes helpful in distinguishing normal aging from dementia, as well as identifying deficits that point to a specific diagnosis, and it is recommended when the diagnosis is unclear.

Nurses may interview patients and family members before they see the physician, or questionnaires that can be completed while families wait for appointments can be used. Clinicians should avoid overreliance on and overinterpretation of laboratory findings, particularly computed tomography and MRI results. In general, the diagnosis of dementia is a clinical one, and the laboratory assessment is used to identify uncommon treatable causes and common treatable comorbid conditions.

Patients with AD commonly suffer from physical illnesses, but such illnesses rarely cause dementia. However, treatment of coexisting medical problems often improves quality of functioning. Physicians probably overdiagnose vascular dementia. A history of “small strokes,” unless accompanied by a clear demonstration of focal signs of motor or sensory impairment, is commonly not vascular dementia, which becomes clear when such patients are followed to autopsy. Cerebrovascular disease, however, does appear to contribute to the severity of cognitive symptoms in AD. Dementias that are potentially reversible are rare.

The initial stages of AD are characterized by normal motor, sensory, and cerebellar functioning. If focal motor or sensory signs, except fluent aphasia and apraxia, are present, a diagnosis of vascular dementia or mixed vascular dementia with AD is likely. Parkinsonian signs, particularly a “pill rolling” tremor that develops prior to cognitive impairment, generally indicate Parkinson’s disease rather than AD. When parkinsonian rigidity and bradykinesia are present during the onset of dementia, a diagnosis of DLB should be considered.

AGITATION

Demented patients with agitation need to be evaluated for undiagnosed medical problems, pain, depression, anxiety, sleep loss, or delirium. Other factors that may contribute to agitation include interpersonal or emotional issues. Addressing such issues, treating underlying medical conditions, providing reassurance, and attending to the possible need for changes in the patient’s environment may reduce agitation. (See [Neuropsychiatric and Behavioral Disturbances in Dementia.](#))

TREATMENT AND MANAGEMENT

The primary treatment goals for patients with dementia are to enhance quality of life and maximize functional performance by improving cognition, mood, and behavior. Both pharmacologic and nonpharmacologic treatments are available, and the latter should be emphasized. The use of pharmacologic treatments for behavioral problems is recommended only after nonpharmacologic ones prove ineffective, or there is an emergent need for them (eg, risk of danger, extreme patient distress).

Nonpharmacologic

Cognitive Enhancement

Reality orientation and memory retraining have been proposed as possible psychotherapeutic techniques to restore cognitive impairment. Although memory retraining may provide modest, transient benefit, it can also cause frustration for both patients and caregivers.

Individual and Group Therapy

Emotion-oriented psychotherapy, such as “pleasant events” and “reminiscence” therapy, and stimulation-oriented treatment, including art and other expressive recreational or social therapies, exercise, and dance, are examples of psychosocial treatments that may influence depressive symptoms. Patient support groups may be helpful, but only when patients are mildly impaired. Well-controlled trials have not demonstrated efficacy for these approaches, but preliminary studies and clinical experience suggest their usefulness for some behavioral and mood symptoms in patients and family members.

Regular Appointments

One approach to ensuring optimal health care for patients with dementia is to schedule regular patient surveillance and health maintenance visits every 3 to 6 months. During such visits the physician should

address and treat comorbid conditions, evaluate ongoing medications, and consider initiating drug-free periods. In addition, it is useful to check for sleep disturbances and provide guidance on proper sleep hygiene.

Communication with Family and Caregivers

Working closely with family members and caregivers will establish an alliance that facilitates management. Relatives are often helpful sources of information about cognitive and behavioral changes, and generally they take the primary responsibility for implementing and monitoring treatment. Areas to pursue with family include medical and legal advance directives (also called *advance care plans* in some contexts). It is often best for a trusted relative to cosign important financial transactions and attend to paying bills. (See [Legal and Ethical Issues](#).)

Discussion about long-term-care placement options should be initiated early rather than late, to provide family members time to complete the arrangements and begin to adjust emotionally. Eventually, almost 75% of patients with dementia need admission to a long-term-care facility and remain for a long time. Caregivers often express concern about their own memory lapses, which should be addressed with counseling or neuropsychologic assessment. Caregiver distress is often reduced with support-group participation, which may relieve common feelings of anger, frustration, and guilt. Respite care is another community resource that offers caregivers relief. Psychosocial support may enhance quality of life for patients and family and even delay nursing-home placement. (See the [resources section in the Appendix](#).)

Environmental Modification

Patients with dementia can be extremely sensitive to their environment; in general, a moderate level of stimulation is best. When they experience overstimulation, increased confusion or agitation may result, whereas too little stimulation may cause withdrawal. Familiar surroundings will maximize existing cognitive functions, and predictability through daily routines is often reassuring. Other helpful orientation and memory measures include conspicuous displays of clocks, calendars, and to-do lists. Links to the outside world through newspapers, radios, and televisions may benefit some mildly impaired patients. Simple sentence structure and repeated reminders about conversation content also may enhance communication.

Attention to Safety

Door locks or electronic guards prevent wandering, and many families benefit from registering with Safe Return through the Alzheimer's Association. (See the [resources section in the Appendix](#).) Using patient name tags and medical-alert bracelets will assist in locating lost patients.

Cognitive impairment affects driving skills, and the visuospatial and planning disabilities of many even mildly demented patients may make them unsafe drivers. Discussions about driving are best initiated early in treatment. In California and some other states, physicians must report patients with AD to the health department, which forwards the information to the motor vehicle department for further assessment. Clinicians agree that patients with advanced dementia definitely should not drive, but many disagree on whether mildly demented patients should drive. Certainly, when a patient has a history of traffic accidents or significant spatial and executive dysfunction, driving abilities should be carefully scrutinized. (See also the section on [the elderly driver in Assessment](#).)

Pharmacologic

Age-Related Issues

When prescribing medications for older patients with dementia, the clinician should consider several factors. Patients in the upper age groups vary in their response, so that treatments need to be individualized. In addition, age is associated with decreased renal clearance and slowed hepatic metabolism. Older patients often take several medications simultaneously, so drug interactions and side effects are likely. Drugs with anticholinergic effects present a particular problem for patients with dementia because they may worsen cognitive impairment and lead to delirium. Another group of problem drugs that may worsen cognition include those causing central nervous system sedation. In light of such factors, clinicians should start with low doses and increase dosing gradually ("start low and go slow"). The goal is to identify the lowest effective dose, thus minimizing side effects; however, subtherapeutic dosing should be avoided. Prior to

initiating any treatment, the physician should conduct a thorough medical examination to identify and treat any underlying medical conditions that might impair cognition.

Cholinesterase Inhibitors

The primary treatments available for improving cognitive function in AD are cholinesterase inhibitors. The two most commonly used drugs are donepezil and rivastigmine. These agents may improve cognitive functioning or even delay cognitive decline. Clinical trials also show that these drugs may improve clinician and family assessments and activities of daily living functioning in patients with AD of mild to moderate severity. Extended cholinergic therapy also may delay nursing-home placement, but the long-term benefits and length of time that treatment should be continued are unknown. Data on the effects of cholinesterase inhibitors on more severely impaired patients or in patients with dementing disorders other than AD are not available. When these agents are prescribed, serial ratings of cognition from standardized mental tests (eg, MMSE) and of functional status are suggested so that the drug's effectiveness can be monitored. Long-term controlled trials have not been performed. Short-term trials demonstrate that when cholinesterase inhibitors are discontinued, the cognitive function of the treated patients returns to the levels of placebo-treated patients.

Donepezil is the most widely prescribed cholinesterase inhibitor. Donepezil has a longer duration of action than does tacrine, as well as higher specificity for brain tissue. Double-blind, placebo-controlled trials show that donepezil has significantly greater cognitive effects than placebo. The recommended starting dosage is 5 mg per day; after 1 month of treatment, an increase to 10 mg daily is recommended. Rivastigmine is started at 1.5 mg twice daily and increased to a maximum of 6 mg twice daily. Although the higher doses are more efficacious for both agents, they are more likely to cause such cholinergic effects as nausea, diarrhea, and insomnia, especially if the dose is increased too rapidly. Such side effects also may worsen the patient's behavior.

Several other cholinesterase inhibitors and cholinergic receptor antagonists are currently under development and will likely become available soon. Direct comparisons among them have not been conducted, and their degree of efficacy appears similar. Cholinergic drugs that have been studied include galantamine, metrifonate, M₁ agonists, nicotinic agonists, and eptastigmine, a physostigmine derivative with a long duration of action. Such direct cholinergic agonists as bethanechol, oxotremorine, pilocarpine, and arecoline do not show meaningful benefit and have significant cholinergic side effects.

Treating patients with cholinergic stimulation in the long term may have effects beyond symptomatic cognitive and behavioral improvement, including influences on neuronal function and survival. For example, both muscarinic agonists and cholinesterase inhibitors stimulate M₁ receptors, and such stimulation may enhance amyloid precursor protein derivative secretion and decrease tau phosphorylation. Thus, drugs that stimulate the M₁ receptor may delay AD progression, but controlled long-term studies are needed to determine any disease-modifying effects. The burdens and benefits of a cholinesterase inhibitor trial should be discussed with all patients with mild to moderate AD.

Other Cognitive Enhancers

Ongoing studies are assessing a variety of other agents that may improve cognitive functioning, including estrogen, nonsteroidal anti-inflammatory agents, and such botanical agents as ginkgo biloba. In a trial including over 300 patients with moderately severe AD, treatment with vitamin E (α -tocopherol) or the selective monoamine oxidase-B inhibitor selegiline (approved for Parkinson's disease treatment) was found to lower rates of functional decline. The use of these agents, however, was not associated with evidence of cognitive improvement. Unfortunately, any clinical benefit for various treatments has been inconclusive thus far. Many patients also use over-the-counter preparations, which physicians should ask about routinely.

Extract from the leaf of the ginkgo tree has been promoted in China and the Orient for memory enhancement. One 52-week double-blind, placebo-controlled study of ginkgo leaf extract in treating AD seemed to show small but statistically significant improvement in cognitive measures. However, global measures did not improve in the small, limited study. Uncommonly, ginkgo biloba has been linked to increased bleeding diathesis. More research is needed before ginkgo can be recommended.

Antidepressants

Antidepressant drug treatment is generally considered for AD patients with depressive symptoms, including depressed mood, appetite loss, insomnia, fatigue, irritability, and agitation. (See [Depression and Other Mood Disorders](#).)

“Sundowning”

In people with mild dementia who appear relatively normal in the day, “sundowning” takes the form of confusion in the late afternoon or evening. In more severely demented people who appear relatively calm during the day, sundowning takes the form of agitated, restless, or aggressive behavior during the night.

Sundowning is probably a nonspecific reaction to an assortment of causes. It has been suggested that sometimes a lack of clues from light and dark cycles may precipitate sundowning. Other factors that have been implicated include sensory deprivation, lack of structure in daily routine, and reaction to novel environments. In some cases sundowning may reflect disruptive behaviors that occur with similar frequency throughout the day and night but that have a different impact on nursing staff or the caregiver at night. The sudden onset of sundowning may also indicate the presence of some occult medical problem, such as a urinary tract infection, pulmonary infection, a disturbance in blood chemistry, or the introduction of a new medication. [Table 17.6](#) gives strategies for reducing sundowning.

Other Resources

Most primary care physicians should be able to successfully treat and manage many patients with dementia, but specialist or specialty referral is sometimes necessary. When the presentation or history is atypical or complex, particularly when the onset begins before age 60, consultation with a specialist with experience in treating dementia patients (eg, geriatric psychiatrist, neurologist) can be useful. Geriatric specialists with psychology or psychiatry training can assist with behavioral management, particularly when patients are agitated, psychotic, or violent. They are also helpful when patients are suicidal or suffer from major depression or when individual or family therapy is indicated for patients or caregivers.

A neurologist can be helpful for patients with parkinsonism, focal neurologic signs, unusually rapid progression, or abnormal neuroimaging findings. Neuropsychologic consultation may clarify diagnostically complex cases, and clinical psychologists can provide psychotherapy, especially for caregivers. Social workers are helpful for counseling and contact with community resources. Guidance on physical and group activity can be sought from physical therapists, while occupational therapists can assess the patient’s functional level and suggest approaches to maximize functioning. Nurses can make management suggestions and guide behavior management, feeding, and other care issues. Wills, conservatorships, estate planning, and other legal matters are best addressed with the assistance of an attorney. Because most dementias are progressive, patients with early dementia should be offered an opportunity to plan for future incapacity and illness. (See also [Legal and Ethical Issues](#).)

Community support can be informal, when neighbors or friends help out, or formal, such as home-care or family service agencies, the aging or mental health networks, or adult day care centers. Available specialized services include adult day care and respite care, home-health agencies that can provide skilled nursing, help lines of the Alzheimer’s Association, and outreach services offered by Area Agencies on Aging and Councils on Aging, which are mandated and funded under the federal Older Americans Act. Food services for the homebound are available from meals-on-wheels, and many senior citizens’ centers, church and community groups, and hospitals offer transportation options.

Organizations providing information and referral for dementia patients and families are listed in [the resources section of the Appendix](#).

ANNOTATED REFERENCES

- Gifford DR, Holloway RG, Frankel MR, et al. Improving adherence to dementia guidelines through education and opinion leaders: a randomized, controlled trial. *Ann Intern Med*. 1999;131(4):237–246.
This study demonstrates that a multifaceted educational program can improve physician adoption of practice guidelines for dementia. The results are encouraging that efforts to standardize treatment guidelines may have an impact through continuing medical education.
- Petersen RC, Smith GE, Waring SC, et al. Mild cognitive impairment: clinical characteristics and outcome. *Arch Neurol*. 1999;56(3):303–308.

This study of patients from the Mayo Clinic Alzheimer's Disease Center/Alzheimer's Disease Patient Registry describes patients with mild cognitive impairment (MCI), differentiates this group from normal persons in a control group and patients with mild Alzheimer's disease (AD), and follows the three groups over 4 years. All underwent a standard protocol of clinical evaluation and neuropsychologic characterization every 12 to 18 months. Patients were categorized as having MCI if they had a memory complaint, normal activities of daily living, normal general cognitive function, abnormal memory for age, and no dementia. Seventy-six persons met criteria as having MCI and were compared with 234 healthy persons and 106 patients with AD. Those in the MCI group did test as being more impaired on measures of memory than did those in the control group and were similar to AD patients on this measure. They were not as impaired as AD patients in other cognitive domains. On follow-up, MCI patients' performance on cognitive testing declined at a rate greater than that of the control group, but less rapidly than that of the AD patients. MCI patients converted to AD at a rate of 12% per year over the 4 years of study. The authors cite a conversion rate to AD of those in the control group of 1% to 2% per year.

- Royall DR, Chiodo LK, Polk MJ. Correlates of disability among elderly retirees with "subclinical" cognitive impairment. *J Gerontol A Biol Sci Med Sci.* 2000;55(9):M541—M546.

The authors examined a random group of 56 older (> 70 years) retirees living in a comprehensive care retirement community. Those studied were white, well educated, and healthy. The mean Mini-Mental State Examination (MMSE) score was 27.7 ± 2.8 , with 92.8% scoring > 24/30. The authors sought to determine whether execution control function (ECF) might be a more sensitive indicator of functional status. Using a measure of ECF employed in previous studies, they found that 31% of the sample had impaired cognitive functioning, as determined by an established cut-off on their instrument. They refer to this as "subclinical" cognitive impairment. The impaired and unimpaired persons were compared. The impaired persons used prostheses (eg, hearing aid, cane, walker) less commonly and were receiving a higher level of care in the retirement community. When all the retirees were examined for impairment in instrumental activities of daily living, the measure of execution dysfunction was found to be independently associated with impairment of telephone usage, transportation usage, meal preparation, medication management, and financial management. Longitudinal follow-up will determine the risk of progression to frank dementia from "subclinical" cognitive impairment. The study is limited by its using a low cut-off for impairment on the MMSE and by the homogeneity of the study population. Also, some of the persons labeled as having "subclinical" cognitive impairment probably did have dementia.
- Small GW. Treatment of Alzheimer's disease: current approaches and promising developments. *Am J Med.* 1998;104(4A):32S–38S.

This is a review of both approved treatments and new approaches under investigation for Alzheimer's disease. The discussion of approved treatments provides details of prescribing and practical suggestions. Knowledge of the more innovative approaches can be helpful in keeping pace with new therapeutic developments.
- Small GW, Rabins PV, Barry PP, et al. Diagnosis and treatment of Alzheimer disease and related disorders: consensus statement of the American Association for Geriatric Psychiatry, the Alzheimer's Association, and the American Geriatrics Society. *JAMA.* 1997;278(16):1363–1371.

This is a consensus statement addressing a variety of dementia issues, including diagnosis, treatment, management, and public policy. Clinicians may find some of the management topics helpful for their clinical practices.

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