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.

Author: Small, Gary W.; Rabins, Peter V. Barry, Patricia P. Buckholtz, Neil S. DeKosky, Steven T. Ferris, Steven H. Finkel, Sanford I. Gwyther, Lisa P. Khachaturian, Zaven S. Lebowitz, Barry D. McRae, Thomas D. Morris, John C. Oakley, Frances Schneider, Lon S. Streim, Joel E. Sunderland, Trey Teri, Linda A. Tune, Larry E. **Source:** JAMA, The Journal of the American Medical Association 278, no. 16 (Oct 22 1997): 1363 (Length: 9 pages) **ISSN:** 0098-7484 **Number:** 19945685 **Copyright:** COPYRIGHT 1997 American Medical Association

ALZHEIMER DISEASE (AD), the most common of the dementing disorders, affects an estimated 4 million people in the United States.[1,2] It causes anguish to millions more caregivers and family members, who must cope with their loved one's steady and irreversible decline in cognition, functioning, and behavior. Patients and caregivers often mistake early symptoms for normal aging changes, and physicians may fail to recognize the initial signs of dementia or misdiagnose them, perpetuating myths and fallacies about the disease--in particular, that the early signs of dementia are "just old age" or "just senility." Alzheimer disease and aging, however, are not synonymous. Expected cognitive changes of aging--for example, a slowing of information processing-are benign, while dementia is progressive and disabling, not an inherent part of growing old.

Recent progress in understanding the diagnosis and treatment of AD and related disorders has benefited many patients. Early and accurate diagnosis may prevent the use of costly medical resources and allow patients and family members time to prepare for future medical, financial, and legal challenges. While no current therapy can reverse the progressive cognitive decline, several pharmacologic agents and psychosocial techniques have been shown to provide relief for the depression, psychosis, and agitation often associated with dementia, and pharmacotherapy may produce cognitive improvement in many patients. Yet, some primary care physicians, who are the port of entry for most patients with early-stage dementia, remain uninformed and thus unable to diagnose, treat, and manage these patients effectively. As the number of older Americans grows, so will the magnitude of the problem. Some epidemiologists project the number of patients with AD to reach 14 million by 2040.[2]

For these reasons, on January 4 and 5 1997, the American Association for Geriatric Psychiatry, the Alzheimer's Association, and the American Geriatrics Society convened a Consensus Conference on the Diagnosis and Treatment of Alzheimer Disease and Related Disorders. After a day of presentations by experts in the relevant fields and discussion with the audience, a consensus panel, chaired by Gary W. Small, MD, and Peter V. Rabins, MD, and comprising experts from psychiatry, neurology, geriatrics, primary care, psychology, nursing, social work, occupational therapy, epidemiology, and public health and policy, considered the scientific evidence--including 3 recently prepared consensus documents on the diagnosis, evaluation, and

treatment of AD and dementia.[3,5] The panel formulated a consensus statement directed at primary care practitioners to address the following questions:

* How prevalent is AD and what are its risk factors?
* What is its impact on society?
* What are the different forms of dementia and how can they be recognized?
* What constitutes safe and effective treatment for AD?
* What are the indications and contraindications for specific treatments?
* What management strategies are available to the primary care practitioner?
* What are the available medical specialty and community resources?
* What are the important policy issues and how can policymakers improve access to care for dementia patients?
* What are the most promising questions for future research?

HOW PREVALENT IS AD AND WHAT ARE ITS RISK FACTORS? WHAT IS ITS IMPACT ON SOCIETY?

Alzheimer disease begins most frequently in late life, generally after the age of 60 years, although in rare cases the disorder may begin as early as age 30 years. Disease progression is gradual and continuous, and the average patient may expect to live from 8 to 10 years after symptom onset. The reported prevalence of AD varies according to the age ranges of sampled populations, dementia definitions, and assessment methods.[6-9] Approximately 6% to 8% of all persons older than 65 years have AD,[10] and the prevalence of the disease doubles every 5 years after the age of 60 years, so that nearly 30% of the population older than 85 years has AD.[11,12] Greater awareness of the prevalence of AD might prompt earlier physician recognition and intervention. One study found that only 40% of primary care physicians knew that AD is the most common cause of dementia in older persons.[13] Furthermore, community-wide prevalence surveys detect many undiagnosed cases. Research has shown that physicians often fail to correctly apply a diagnosis of dementia, making a positive diagnosis when the disease is not present or failing to recognize it when it is.[14-18] Investigators attribute these errors to a lack of attention to cognitive functioning in routine medical examinations and to misperceptions about the normal aging process.[19-22] Given the large number of older Americans likely to become cognitively impaired, primary care physicians require more effective strategies to recognize the disease's early signs and symptoms.

The primary risk factors for AD are age and family history. Some studies suggest that by the age of 90 years, almost 50% of persons with a first-degree relative with AD develop the disease themselves.[23,24] Genetic mutations on chromosomes 1, 14, and 21 cause rare, early-onset familial forms,[25-27] and the apolipoprotein E-4 (APOE-4) allele on chromosome 19 is associated with an increased risk for the common late-onset AD.[28] However, the APOE-4 allele also is found in elderly persons without AD and is not present in many patients with the disease. Genetic testing for APOE is not recommended for predictive screening in asymptomatic persons, and experts disagree on its usefulness as a diagnostic test for AD in demented patients.[29,30] Some forms of late-onset AD also have been linked to chromosome 12.[31] Other possible risk factors for AD include additional, but as yet undefined, susceptibility genes, a previous head injury, female sex, and lower education level. Possible, but not proven, protective factors include the use of estrogen replacement therapy and nonsteroidal anti-inflammatory drugs.

Alzheimer disease exacts a major toll on society. When the costs of medical and long-term care, home care, and lost productivity for caregivers are totaled, the direct dollar expenditure and indirect costs (de, resource loss, family care) approach $100 billion each year.[32,33] Medicare, Medicaid, and private insurance bear much of the direct cost, but families who care for patients with AD assume the largest portion of expenses.

The financial costs of AD provide an incomplete picture of the total burden. The emotional toll on patients and their families is profound and a significant source of caregiver morbidity. Indeed, up to 50% of primary caregivers of AD patients develop significant psychological distress.[34] Thus, any economic assessment actually underestimates the true cost of the disease to society unless quality of life of both patients and caregivers is included in the analysis.[35]

WHAT ARE THE DIFFERENT FORMS OF DEMENTIA AND HOW CAN THEY BE RECOGNIZED?

Recent guidelines have been published on the diagnosis and assessment of dementia.[4] Dementia is an acquired syndrome of decline in memory and other cognitive functions sufficient to affect daily life in an alert patient.[36] Alzheimer disease is the most common form of dementia, accounting for two thirds or more of all dementia cases, while vascular dementia accounts for approximately 15% of all dementias.[4] The recently identified dementia associated with Lewy bodies (DLB) is receiving increased attention. A positive diagnosis of DLB requires both a finding of dementia and at least 1 of 3 core symptoms: detailed visual hallucinations, parkinsonian signs, and alterations of alertness or attention.[37] Autopsy series suggest about 25% of dementias are DLB,[37] although DLB may overlap with AD and the dementia associated with Parkinson disease.

Alzheimer disease is characterized by gradual onset and progressive decline in cognition with sparing of motor and sensory functions until later stages: The average course of AD is approximately a decade, with a range of 3 to 20 years' duration from diagnosis to death, but the rate of progression is variable. Memory impairment is present in the earliest stages of the disease; patients have difficulty learning new information and retaining it for more than a few minutes. As the disease advances, the ability to learn is increasingly compromised, and access to older, more distant memories is lost. Other cognitive losses include aphasia, apraxia, disorientation, visuospatial dysfunction, and impaired judgment and executive functioning.

Cognitive impairment may affect daily life in several ways: patients have difficulty planning meals, managing finances or medications, using a telephone, and driving without getting lost. These functional impairments may be the patient's or family's first sign that something is amiss. Many capacities remain intact in patients with mild to moderate AD, including the performance of self-care activities of daily living, such as eating, bathing, and grooming. Social skills often are intact until later stages of the disease.

Significant changes in behavior and mood often occur.[38] Patients may evidence personality alterations, irritability, anxiety, or depression early in the disease process. Delusions, hallucinations, aggression, and wandering often develop in middle and late stages. Such behaviors are the most troubling to caregivers and frequently lead to family distress and nursing home placement.[39]

The presence of either delirium or depression may confound dementia recognition. Delirium is a syndrome of acquired impairment of attention, alertness, and perception.[36] Like dementia, delirium is characterized by global cognitive impairment; however, it can be distinguished by its acute onset, marked fluctuations in cognitive impairment over the course of a day, disruptions in consciousness and attention, and alterations in the sleep cycle. Hallucinations and visual illusions are common. A general medical condition, such as infection or metabolic disturbance, or pharmacologic toxicity typically causes delirium. Delirium and dementia often coexist, particularly in a hospital setting.[40] Dementia is a risk factor for delirium and contributes to the higher prevalence of delirium in the elderly.[40,41] Thus, an episode of delirium in an older person should prompt a dementia evaluation when the delirium clears, if the cognitive impairment persists.

Depression and dementia may be mistaken for each other, and their differentiation presents a diagnostic challenge. Patients with AD often present with depressive symptoms. Such patients often minimize their cognitive deficits, while the patient with primary depression often shows impaired motivation during the cognitive examination and has cognitive complaints that exceed objectively measured cognitive deficits. Language and motor skills usually remain intact in patients with depression but often are impaired in AD. Nearly 50% of elderly patients with reversible dementia and depression will develop irreversible dementia within 5 years.[42]

The diagnosis of AD must be primarily one of inclusion, not exclusion, as is often supposed. In approximately 90% of cases, the diagnosis can be made on the basis of a general medical and psychiatric evaluation.[43,44] Primary care physicians must be alert to early symptoms of AD and recognize that many patients seek out medical treatment for a reason other than cognitive difficulty. Any patient or family concerns about cognitive decline should trigger a mental status assessment and possibly a dementia evaluation.

The most important diagnostic tools are the informant interview and office-based clinical assessment. Physicians should interview both the patient and a reliable informant and inquire into the patient's current condition, medical and medication history, patterns of alcohol use, and living

arrangements. The Functional Activities Questionnaire[45] and the Revised Memory and Behavior Problems checklist[46] are 2 useful informant-based instruments among several that help determine lapses in memory and language use, the ability to learn and retain new information, handle complex tasks, demonstrate sound judgment, and show usual behavior. Reported changes should be compared with the patient's past performance, as evidence of decline from previous functioning and impairment in multiple cognitive domains confirms the diagnosis.

Physicians should conduct a comprehensive physical examination, including a brief neurological and mental status evaluation. Also recommended are a brief quantified screen of cognitive function such as the Mini-Mental State Examination (MMSE),[47] and a laboratory evaluation, generally including a complete blood cell count, blood chemistries, liver function tests, a serological test for syphilis, and determination of thyroid-stimulating hormone and vitamin [B.sub.12] levels..[3-5] Other laboratory tests should be ordered if suggested by history or physical examination. Imaging studies are optional but recommended by many clinicians and experts. Noncontrast computed tomographic (CT) head scans are adequate in most instances. Some clinicians recommend magnetic resonance imaging (MRI) if vascular dementia is suspected, but white-matter changes revealed by [T.sub.2]-weighted MRI images generally are not related to dementia and should not be overinterpreted. If the diagnosis remains unclear, a repeat assessment in 6 months is indicated to check for progressive decline. Functional imaging studies, such as single-photon emission CT and positron emission tomography, may show the characteristic parietal and temporal deficits in AD or the widespread irregular deficits in vascular dementia.[48,49]

Patients with high educational levels may show normal cognitive function scores on tests such as the MMSE. Conversely, some elderly patients may have low MMSE scores and no decline in function, particularly those with lower educational levels. In clinical practice, cognitive measures are most useful as a quantitative baseline against which to compare future assessments. When the diagnosis is unclear, neuropsychological testing may distinguish between normal aging and dementia, as well as identify deficits that point to a specific diagnosis.

Recent changes in medical practice may hinder detection of AD. In today's managed care environment, many primary care physicians have limited time available for a comprehensive informant interview. To help expedite the process, it may be advantageous for nurses to interview patients or family members before they see the physician or use questionnaires that can be completed while they are waiting for the appointment. Telephone interviews are another option. Overreliance on and overinterpretation of laboratory findings, particularly CT and MRI results, should be avoided. The diagnosis of dementia usually is a clinical diagnosis. The laboratory assessment is performed to identify uncommon treatable causes and common treatable comorbid conditions.

Physical illness is common in patients with AD, but it rarely is the proximate cause of dementia. Vascular dementia is probably overdiagnosed.[50] Physicians should be suspicious of a history of "small strokes," unless they are accompanied by a clear demonstration of focal signs of motor or sensory impairment. A majority of dementia patients diagnosed as having vascular dementia are found on autopsy to have AD. However, cerebrovascular disease may contribute to the severity of cognitive symptoms of AD.[51] Potentially reversible dementias are uncommon.[52]

During the early stage of AD, the motor, sensory, and cerebellar portions of the neurological examination usually are normal. Focal motor or sensory signs, except fluent aphasia and apraxia, suggest vascular dementia or mixed vascular dementia and AD. Parkinsonian signs, especially the presence of "pill rolling" tremor in the years predating cognitive impairment, usually are indicative of Parkinson disease, not AD. Parkinsonian rigidity and bradykinesia accompanying the onset of dementia suggest DLB.[37] Patients who present with an unusual onset or symptomology or whose neurological findings are atypical usually should be referred to a neurologist, geriatric psychiatrist, or geriatrician.

WHAT CONSTITUTES SAFE AND EFFECTIVE TREATMENT FOR AD? WHAT ARE THE INDICATIONS AND CONTRAINDICATIONS FOR SPECIFIC TREATMENTS?

The primary goals of treatment of patients with AD are to improve quality of life and maximize functional performance by enhancing cognition, mood, and behavior. Treatments include pharmacologic and nonpharmacologic approaches, and the latter should be emphasized.

Pharmacologic treatment should be introduced only if nonpharmacologic interventions prove ineffective, there is a significant risk of danger, or the patient is very distressed.

Several factors influence medication prescription for most older patients with AD, although there is considerable variability and need to individualize treatments. First, the elderly have decreased renal clearance and slowed hepatic metabolism. Second, elderly patients often take multiple medications, so the clinician must be aware of potential drug interactions and adverse effects. Anticholinergic adverse effects pose a particular problem in persons with AD, as they can worsen cognitive impairment and may even cause delirium. Drugs causing central nervous system sedation may also worsen cognition. Third, elderly patients have decreased vascular tone and are subject to orthostasis, leading to falls. Thus, low starting doses and small increases should be used, and the periods between drug changes should be extended. Using the lowest effective dose can minimize adverse reactions, although dosing at subtherapeutic levels can be a problem. Nonessential polypharmacy should be avoided.

Before beginning treatment, it is recommended that physicians conduct a thorough medical examination and treat underlying medical conditions that can impair cognition (eg, thyroid disease). The continued use of any drug must be assessed and justified regularly over time.

Cognitive and Functional Enhancers

Cholinesterase Inhibitors.--Improving central cholinergic neurotransmission is the only treatment currently available for the cognitive impairment of AD. Tacrine and donepezil, the 2 agents with labeling for treatments of AD approved by the US Food and Drug Administration, may improve cognitive functioning or delay decline and may also enhance clinician and family assessments and activities of daily living in patients with mild to moderate AD.[53,54] Open-label studies suggest beneficial effects on behavioral symptoms in some patients,[55] and prolonged cholinergic therapy may delay nursing home placement.[56] The effects on patients with more severe disease or with other dementing disorders have not yet been assessed. Serial ratings of cognition (eg, MMSE) and functional status may be useful in monitoring drug effectiveness. Controlled data are lacking that dictate length of treatment, but short-term trials show that cognitive function returns to levels of placebo-treated patients when treatment with cholinesterase inhibitors is discontinued.

Tacrine is a centrally active aminoacridine with reversible nonspecific cholinesterase inhibitor activity and a duration of action of less than 7 hours. In clinical trials involving approximately 2000 patients with mild to moderate AD, between 20% and 30% of tacrine patients showed clinically observable improvement compared with placebo, representing on average about 6 months of deterioration.[57] However, approximately one fifth experienced cholinergic adverse effects, most frequently gastrointestinal distress.[58,59] In addition, 29% had reversible elevations of serum transaminase levels 3 times above normal. After rechallenge, nearly 90% of patients can tolerate the compound.59 The starting dose for tacrine is 10 mg 4 times daily, which can be increased up to a maximum dose of 40 mg 4 times daily. Patients receiving tacrine should have a baseline and multiple follow-up alanine aminotransferase determinations.

Donepezil is a second-generation cholinesterase inhibitor that, like tacrine, shows dose-dependent activity but has a longer duration of inhibitory action and greater specificity for brain tissue. In 3 double-blind, placebo-controlled trials including more than 1000 patients, donepezil produced significantly greater cognitive effects (eg, enchanced memory, orientation, language, and reasoning) than placebo over periods of 12 and 24 weeks but did not cause hepatotoxicity.[54,50] The drug has a recommended starting dose of 5 mg/d, which may be increased to 10 mg/d after 1 month. The higher dose, while more efficacious, has a greater tendency to cause cholinergic adverse effects (eg, nausea, diarrhea, and insomnia) if increased too rapidly, and such effects may worsen behavior. Physicians may consider a trial of either of these agents for patients w th mild to moderate AD. Many specialists believe that donepezil might prove advantageous as first-line therapy because it is given once a day and does not require a long introductory period and regular monitoring of liver function. Other cholinesterase inhibitors and cholinergic agonists are in clinical development and may become available in the near future.

Other Agents.--Clinical trials of other agents to improve cognitive function are ongoing. These include estrogen, nonsteroidal anti-inflammatory agents, and botanical agents, such as ginkgo biloba. A study of 341 moderately impaired patients found that treatment w th vitamin E (a-tocopherol) or the selective monoamine oxidase-B inhibitor selegiline (with labeling indications

being for treatment of Parkinson disease) showed decreased rates of functional decline compared with placebo treatment but no evidence of improvement.[61] The evidence of clinical benefit for any of these agents is inconclusive at this time. As over-the-counter products are popular, physicians are encouraged to ask about their use.

Nonpharmacologic Cognitive Enhancement Strategies: Cognition-Oriented Psychotherapy Psychotherapeutic techniques proposed to restore cognitive dysfunction include reality orientation and memory retraining. They may yeld some transient benefit,[62] but also may provoke frustration and depression in patients and caregivers. As the cognitive improvements associated w th reality orientation and memory retraining are weak, many specialists believe the potential risks outweigh the benefits.

Treatment of Depression in Dementia

Pharmacotherapy.--Patients with AD and depressive symptoms (eg, depressed mood, appetite loss, insomnia, fatigue, irritability, and agitation) should be considered for pharmacotherapy, even if they fail to meet the criteria for a depressive syndrome. The physician should carefully evaluate for indexes of major depression, suicidal ideation may indicate the need for intensive monitoring or hospitalization.

The choice of an antidepressant agent should be based on the drug's profile of adverse effects and the patient's general medical and psychiatric status. Many specialists favor the selective serotonin reuptake inhibitors (SSRIs) fluoxetine, paroxetine, and sertraline as first-line treatment because they have fewer adverse effects than other antidepressants. Tricyclic antidepressants are effective drugs for depression, but these agents, especially amitriptyline, imipramine, anafranil, and clomipramine, have significant anticholinergic activity, can cause orthostatic hypotension and delayed cardiac conduction, and are risky in overdose. Nortriptyline, desipramine, bupropion, trazodone, and nefazodone are alternatives.

Monoamine ox case inhibitors (MAOIs), including tranylcypromine and phenelzine, can cause postural hypotension and have complex drug interactions w th sympathomimetic agents, narcotics such as meperidine, and serotonergic agents. The MAOIs also require dietary modifications. These agents should be considered only for patients who are unresponsive to or unable to tolerate other antidepressant medications. If they are used, adequate supervision should be arranged.

Nonpharmacologic Strategies.--A comprehensive system of humane care for patients with dementia requires consideration of psychosocial strategies to enhance quality of life. These include emotion-oriented psychotherapy, such as "pleasant events" and "reminiscence" therapy,[62-64] and stimulation-oriented treatment, including art and other expressive recreational or social therapies, exercise, and dance.[65] Support groups for patients with mild impairment also may provide a constructive environment to help mobilize cognitive and behavioral resources. Despite a paucity of well-controlled data, preliminary studies and clinical practice suggest that these interventions may decrease behavioral problems and improve mood in patients and family alike.[66-68]

Treatment of Agitation and Psychosis in Dementia

Agitation is a general term that refers to a range of behavioral disturbances, including aggression, combativeness, shouting, hyperactivity, and disinhibition. As many as 50% of all dementia patients exhibit agitation, particularly in middle and later stages of the illness.[69] Psychosis (paranoia, delusions, and hallucinations) is far less frequent but can cause distress to patients and lead to violence. These symptoms can overlap, may be difficult to distinguish, and are among the most common causes of institutionalization or specialist referral.

Undiagnosed medical problems, pain, depression, anxiety, loss of sleep, or delirium may cause agitation. Unaddressed interpersonal or emotional issues, such as fear of abandonment, also may lie at the root of the disturbance. Treatment of underlying medical conditions, reassurance, attention to the environment, or emotion-oriented psychotherapy may reduce agitation.

A meta-analysis of published studies demonstrates that antipsychotic drugs can produce a modest improvement in some behavioral symptoms in dementia[70] and may be most effective for psychotic symptoms.[71] these agents are the only pharmacologic treatments available to treat psychotic symptoms, and they are widely used in the treatment of agitation. Newer drugs, such as the atypical antipsychotics clozapine, risperidone, and olanzapine, have not been well studied in the elderly patient with dementia, but mounting clinical evidence supports their use.

Anecdotal evidence suggests risperidone and clozapine are effective at very low doses in the treatment of agitation and psychosis in elderly patients.[72,73] In patients with Parkinson disease, clozapine avoids the extrapyramidal effects of conventional antipsychotics,[73,74] and risperidone's effectiveness at low doses also may limit its extrapyramidal adverse effects.[72] Other new atypical antipsychotics, including sertindole, quetiapine, and ziprazodone, may soon become available.

Clinical trial data indicate comparable efficacies among antipsychotic drugs; therefore, clinicians should base their choice of specific agents on their profile of adverse effects. Common adverse events associated with high-potency compounds (eg, haloperidol) include parkinsonian symptoms; with low-potency agents (eg, chlorpromazine), sedation, postural hypotension, and anticholinergic effects. Less frequent, but more serious, adverse effects are tardive dyskinesia and neuroleptic malignant syndrome, which have been reported with conventional antipsychotics and risperidone, but not clozapine.[75] However, clozapine can produce anticholinergic effects and carries a risk of agranulocytosis, requiring blood-count monitoring. Development of non-life-threatening adverse effects should first be treated by dose reduction. Referral to a specialist is helpful when withdrawing patients from antipsychotic drugs.

Benzodiazepines also have been used in the treatment of behavioral disorders associated with dementia. While helpful for treating anxiety or infrequent agitation, they appear less effective than antipsychotics for more severe symptoms. The most frequently reported adverse effects of benzodiazepines include sedation, ataxia, amnesia, confusion, and disinhibition. Such short-acting benzodiazepines as oxazepam and lorazepam are preferred over long-acting drugs (eg, diazepam, chlordiazepoxide, and flurazepam) because the latter drugs and their metabolites accumulate in the blood and are more likely to cause adverse effects.[76] Given such risks, the use of benzodiazepines should be minimized.

Other agents explored in the treatment of behavioral disorders in dementia include the anticonvulsants carbamazepine[77] and valproate,[78] the 5-hydroxytryptophan modulator trazodone,[79] buspirone,[80] and the SSRIs.[81] While favorable case studies, case series, open trials, and a few placebo-controlled investigations have been reported, evidence from well-designed trials has not been confirmed. Therapeutic trials of these agents may be appropriate for some dementia patients with behavioral symptoms who cannot tolerate or do not respond to antipsychotic drugs.

WHAT MANAGEMENT STRATEGIES ARE AVAILABLE TO THE PRIMARY CARE PRACTITIONER?

Successful patient management aims to minimize behavioral disturbances, maximize functioning and independence, and foster a safe and secure environment. To this end, several principles are recommended:

* Schedule regular patient surveillance and health maintenance visits every 3 to 6 months. Address and treat comorbid conditions, evaluate ongoing medications periodically, and consider initiating drug-free periods. Check for sleep disturbances and provide guidance on proper sleep hygiene. Medicate only as a last resort.

* Work closely with family and caregivers. Establish and maintain an alliance with caregivers, who can be important sources of information about cognitive and behavioral changes, and often are responsible for implementing and monitoring treatment. Help them establish medical and legal advance directives for patients and update the patient's will early in treatment.[82,83] Suggest that a trusted family member cosign any important financial transaction and take care of paying bills. Discuss long-term care placement in anticipation of future needs, so family members have time to complete the arrangements and begin to make the necessary emotional adjustment. Ultimately, nearly three fourths of dementia patients require admission to a residential long-term care facility and remain for a prolonged time.

Monitor the health and stamina of caregivers and communicate with their physicians, or treat as needed. Caregivers' concerns about their own memory lapses should be addressed with counseling or neuropsychological assessment. Support group participation will diminish caregiver distress and can help relieve feelings of anger, frustration, and guilt. Support groups also help confirm that such feelings are common. Community resources, including respite care, are other important sources of help. Studies show that information and emotional support enhance quality of life for patients and family and can delay nursing home placement.[84]

* Establish programs to improve patient behavior and mood. Set up an exercise routine to continue safe ambulation for as long as possible. Help patients maintain social and intellectual activities as tolerated, especially important family events.[85] Monitor safety and intervene when necessary.

* Encourage caregivers to modulate the environment. Dementia patients are sensitive to their environment and often do best with moderate stimulation. Too much stimulation may worsen confusion or cause agitation; too little may lead to withdrawal. Encourage families to employ familiar surroundings to enhance mood and maximize existing cognitive functions; to promote a sense of security and predictability through daily routines; and to stimulate memory and orientation through conspicuous displays of clocks, calendars, and to-do lists. Many patients benefit from links to the outside world through newspapers, radios, and televisions. Use of simple sentence structure and frequent reminders about the content of the conversation will enhance communication with the patient.

* Warn families of the hazards of wandering and driving. Suggest supervised walks to promote regular exercise and encourage the use of door locks or electronic guards to prevent wandering. Encourage registration with Safe Return through the Alzheimer's Association. Patient name tags and medical-alert bracelets also can help locate lost patients. The cognitive impairments of AD diminish driving skills, and a substantial number of even mildly demented patients should not drive because of their visuospatial and planning disabilities.[86] Begin discussions about driving early in treatment and examine driving patterns and transportation needs. Some states, such as California require physicians to report patients with AD to better monitor their driving skills. A diagnosis of dementia should raise awareness of driving and transportation needs, and patients with advanced dementia should not be driving. There is less consensus on what to tell those with mild dementia. Some experts believe no person with a diagnosis of AD should drive, while others advise patients to restrict their driving or consider the use of a driving partner, if their history suggests they still are safe drivers. Patients who have a history of traffic mishaps or more significant spatial and executive dysfunction should undergo careful scrutiny.

WHAT ARE THE AVAILABLE MEDICAL SPECIALTY AND COMMUNITY RESOURCES?

Primary care physicians can treat and manage successfully many cases of AD. However, referral to a specialist or specialty AD center is sometimes necessary. Geriatricians, geriatric psychiatrists, psychologists, or neurologists should be consulted when the presentation or history is atypical or complex, especially when the onset is before the age of 60 years. Geriatric psychiatrists and psychologists can provide behavioral management, especially for agitation, psychosis, or violent behavior; management of suicidal behavior or treatment of major depression; individual or family therapy for patients and caregivers; and functional evaluation to make a determination about institutionalization or hospitalization. Neurological consultation is particularly important for patients with parkinsonism, focal neurological signs, unusually rapid progression, or abnormal neuroimaging findings. Neuropsychologists can help clarify uncertainties in diagnosis and the degree and type of impairment, and clinical psychologists can provide psychotherapy, particularly for caregivers. Social workers can offer counseling and link patients and family members with community resources. Activity and physical therapists provide guidance on appropriate levels of physical and group activity, and occupational therapists can evaluate the ability to perform activities of daily living and offer strategies to maximize functioning. Attorneys can assist with wills, conservatorships, estate planning, and other legal matters. For end-of-life issues, some families might also benefit from consultation with a member of the clergy or a medical ethicist.

Community support includes all locally available sources of assistance aimed at maximizing patients' independent living and functioning. The relief can be informal, such as neighbors and friends, and formal. such as home care or family service agencies, the aging or mental health networks, or adult day care centers. Physicians tend to be unfamiliar with these approaches and may want to rely on the Alzheimer's Association or an aging or social service agency familiar with the options. Availability of community resources can be discussed during office visits.

Several specialized services are available, including adult day care and respite care; skilled nursing care provided by the home health agencies; help lines of the Alzheimer's Association; and outreach services, as offered by area agencies on aging and councils on aging, agencies mandated and funded under the federal Older Americans Act. Aging services also can

recommend handypersons and homemakers, friendly visitor or companion programs, and housing and legal assistance. Meals-on-wheels arranges food services for the homebound, while senior citizens centers, church and community groups, and hospitals offer transportation options. Organizations providing information and referral for dementia patients and families include the Alzheimer's Association ([800] 272-3900), the Geriatric Psychiatry Alliance ([888] 463-6472), the American Geriatrics Society ([212] 308-1414), and the Alzheimer's Disease Education and Referral Center ([800] 438-4380). All offer consumer education, research, and support programs and activities.

WHAT ARE THE IMPORTANT POLICY ISSUES AND HOW CAN POLICYMAKERS IMPROVE ACCESS TO CARE FOR DEMENTIA PATIENTS?

Despite recent progress in the development of new treatments for AD, many patients and caregivers receive inadequate care. One reason is that the precise role of mental health services in the treatment of AD has not been specified. Is AD a medical or psychiatric disease? Is it both? In our "nonsystem" of health care for older Americans, a hodgepodge of multiple providers, manifold services, and different (and sometimes competing) financing mechanisms, AD patients tend to occupy a controversial middle ground between psychiatric and medical disorders. In some cases, this "neither-nor" position has led to superior access and reimbursement for some medical treatments, especially compared with patients with chronic diseases or mental disorders. In other cases, patients have been denied eligibility for some state-funded services, such as Medicaid, and have received heightened federal scrutiny of other psychosocial and community services. With reform of the health care delivery system remaining a national concern, clarification of this imprecise middle ground should be a priority. Policymakers need to find ways to deliver quality care to patients, integrating medicine's best understanding of the pathophysiology and natural history of AD with the need for comprehensive and integrated multidisciplinary care.

To maximize the access to care of dementia patients, evidence-based treatment protocols should shape decisions by health care delivery systems. Seamless referral and access to critical services for both patients and caregivers are essential, and reimbursement mechanisms should cover a wide range of sites and services. Payers also should offer physician and staff training and provide sophisticated quality assurance and information processing systems. Finally, special care should be taken to protect the rights of cognitively impaired adults, including the use of advance directives and durable powers of attorney.

Health care delivery in the United States is in the midst of a period of change that may rival in importance even the introduction of Medicare and Medicaid in the mid 1960s. As managed and capitated care come to dominate the health services landscape, federal and state planners will be challenged to develop guidelines to ensure access to primary care providers and specialists; access to core services by underserved inner-city and rural populations; and access to community resources, including self-help groups. It is disturbing that, in the United States, the delivery of care and payment varies so widely by geographic region and socioeconomic status. To overcome these gaps and inequities, planners will need to rely heavily on empirical data, especially in the area of treatment and management of dementia.

Equally necessary is a major change in perception. Policymakers, the medical profession, and payers must recognize that AD and other dementias are chronic diseases like arthritis or coronary artery disease. While the underlying disease is not yet curable, many behavioral and emotional and some cognitive and functional symptoms can be treated, sometimes dramatically enhancing the quality of life of patients and families. Broad access to multidisciplinary care will require a significant commitment of scarce health resources at a time when other pressing medical problems are demanding equal attention. But when we consider the alternatives, the social and economic costs already incurred and the explosive growth in the number of AD patients, we conclude that this is a commitment the nation must make.

WHAT ARE THE MOST PROMISING QUESTIONS FOR FUTURE RESEARCH?

The aforementioned considerations suggest the following research questions: What barriers contribute to the delivery of inadequate or untimely medical services in primary care settings? Areas of investigation might include the following:

* physician knowledge about diagnosis and treatment, and the skills required to assess patients;
* attitudes and beliefs about dementia held by the public and medical professionals;

* fiscal barriers, including access, insurance coverage, and reimbursement and managed care issues;
* demographic and socioeconomic factors, including race, ethnicity, and culture;
* disease complexity and the dependence on specialists to diagnose and treat.

What is the relationship between aging and the increasing prevalence of AD, and how do genetic, environmental, social, and ethnic factors interact in the etiology of disease?

How early and accurately can AD be diagnosed, and what are the most effective measures to use, including cognitive tests, behavioral assessments, neuroimaging and genetic tests? Longitudinal follow-up to determine whether early diagnosis affects outcome should be incorporated in the study design.

Which current and investigational therapies most effectively delay, halt, or mitigate cognitive and behavioral deterioration? What are the relative costs and benefits of current and newer interventions? Areas of investigation might include the following:
* the merits of long-term use of cognition-enhancing pharmacologic therapies;
* the benefits of psychosocial therapies to maximize functioning and quality of life;
* the cost-effectiveness of chronic care programs, including home care, adult foster care, assisted living, nursing home, special care units, and other long-term care;
* interventions that reduce the risk of caregiver depression and improve tolerance and the capacity to care for patients in the home, including educational materials, counseling, support groups, day care, and respite care.

How do different health delivery systems influence the course of illness, care settings, and impact on the family? How do different disease management models--for instance, primary care vs specialist vs collaborative; psychiatric vs medical; managed care vs fee-for-service--affect diagnosis, treatment, and outcome? Which quality indicators are most useful?

What are the best ways to maintain the safety and independence of AD patients? When should patients stop driving, living alone, or participating in other potentially hazardous activities?

What level of care is appropriate and humane for patients with severe end-stage AD? In light of any advance directives that terminal patients may have prepared, is symptomatic treatment warranted? Should life be extended and, if so, for how long?

Whenever possible, health services and outcomes research should be conducted in diverse community populations. Most studies of dementia to date have been conducted in academic or other unrepresentative settings. Differences in the quality and level of care in diverse geographic regions and populations and subgroups should be studied. Minorities in particular face very different treatment and management issues. The use of "natural populations" in controlled community settings offers more practical answers to these questions.

CONCLUSIONS AND RECOMMENDATIONS

1. Dementia and AD, its most common form, incur substantial costs to society. The diagnosis of AD, moreover, continues to be missed in clinical practice. Alzheimer disease is underreported and unrecognized because many patients do not seek evaluation and family members tend to compensate for deficits. In addition, physicians may fail to recognize the early signs of disease or to diagnose the disorder correctly, even though effective treatment and management techniques are available to enhance quality of life. The lack of a specific diagnostic test for AD means that physicians must conduct a focused clinical assessment and informant interview on patients with suspected AD.

2. The diagnosis of AD is primarily one of inclusion, and the diagnosis usually can be made using standardized clinical criteria. As many patients do not visit a physician for the treatment of suspected dementia at the time of diagnosis, but rather for another medical problem, physicians should be alert to concerns about cognitive decline and evaluate promptly. Progressive memory and other cognitive impairment in a clear state of consciousness is most commonly indicative of AD. Vascular dementia may be overdiagnosed, but its progression is potentially preventable if risk factors for stroke are recognized and treatment is initiated.

3. While AD is a complex disorder that ultimately may require treatment by a neurologist, geriatrician, or geriatric psychiatrist, much of its treatment can be managed successfully in the primary care setting. Longitudinal monitoring of therapies and regular health maintenance checkups are essential. New cognitive and functional enhancers may improve memory and other aspects of cognition and function. Emotional and behavior disturbances can be treated, and their

resolution can provide significant improvement in quality of life. All psychopharmacologic therapies should be used judiciously in the elderly.

4. Family intervention is critical. Education, counseling, and support can help caregivers cope with feelings of anger, frustration, and guilt in response to a patient's sometimes provocative behavior. Family members benefit from reassurance that their responses are common. Relatives' anxiety about their own memory lapses may respond to counseling, coupled with a neuropsychological evaluation. In some cases, such assessments uncover early symptoms of disease, allowing for prompt treatment and management.

5. Newly evolving delivery systems and reimbursement practices are exacerbating the nation's inadequate and fragmented system of care. Better definition of quality care, based on rigorous quantitative data, will enable policymakers and delivery systems to create new approaches to ensure access to essential medical, psychosocial, and community resources. Given the morbidity and mortality associated with AD, increasing expenditures are essential to fill an already critical medical and social need.

6. Answers to a variety of research questions will help resolve these issues. Investigators need to focus on barriers to care and conduct longitudinal studies, using both naturalistic and treatment-based designs. Cost-effectiveness needs to be assessed for both diagnostic and treatment approaches.

References

[1.] Advisory Panel on Alzheimer's Disease. Alzheimer's Disease and Related Dementias: Acute and Long-term Care Services. Washington, DC: US Dept of Health and Human Services; 1996. NIH publication. 96-4136.

[2.] Evans DA. Estimated prevalence of Alzheimer's disease in the US. Milbank Q. 1990;68:267-289.

[3.] American Academy of Neurology. Practice parameter for diagnosis and evaluation of dementia (summary statement): report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology. 1994;44:2203-Z06.

[4.] Costa PT Jr, Williams TF, Somerfield M, et al. Recognition and Initial Assessment of Alzheimer's Disease & Related Dementias. Rockville, Md: US Dept of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research; November 1996. AHCPR publication 97-0702.

[5.] US Dept of Veterans Affairs, University Health-System Consortium. Dementia Identification and Assessment: Guidelines for Primary Care Practitioners. Oak Brook, Ill: University HealthSystem Consortium; 1997.

[6.] Evans DA, Funkenstein HH, Albert MS, et al. Prevalence of Alzheimer's disease in a community population of older persons is higher than previously reported. JAMA. 1989;262:2551-2556.

[7.] Dartigues JF, Gagnon M, Michel P, et al. The Paquid research program on the epidemiology of dementia: methods and initial results. Rev Neurol (Paris). 1991;147:225-230.

[8.] Heeren TJ, Lagaay AM, Hijmans W, Rooymans HG. Prevalence of dementia in the `oldest old' of a Dutch community. J Am Geriatr Soc. 1991;35:755-759.

[9.] Hendrie HC, Osuntokun BO, Hall KS, et al. Prevalence of Alzheimer's disease and dementia in two communities: Nigerian Africans and African Americans. Am J Psychiatry. 1995;152:1485-1492.

[10.] Ritchie K, Kildea D. Is senile dementia `age related' or `aging related'? evidence from a meta-analysis of dementia prevalence in the oldest old. Lancet. 1995;346:931-934.

[11.] Bachman DL, Wolf PA, Linn RT, et al. Incidence of dementia and probable Alzheimer's disease in a general population: the Framingham Study. Neurology. 1993;43:515-519.

[12.] Jorm AF. The Epidemiology of Alzheimer's Disease and Related Disorders. London, England: Chapman & Hall; 1990.

[13.] Barrett JJ, Haley WE, Harrell LE, Powers RE. Knowledge about Alzheimer disease among primary care physicians, psychologists, nurses, and social workers. Alzheimer Dis Assoc Disord. 1997;11:99-106.

[14.] Hoffman RS. Diagnostic errors in the evaluation of behavioral disorders. JAMA. 1982;248:964-967.

[15.] McDaniel LD, Lukovits T, McDaniel KD. Alzheimer's disease: the problem of incorrect clinical diagnosis. J Geriatr Psychiatry Neurol. 1993;6:230-234.

[16.] Ryan DH. Misdiagnosis in dementia: comparisons of diagnostic error rate and range of hospital investigation according to medical specialty. Int J Geriatr Psychiatry. 1994;9:141-147.

[17.] Callahan CM, Hendrie HC, Tierney WM. Documentation and evaluation of cognitive impairment in elderly primary care patients. Ann Intern Med. 1995;122:422-429.

[18.] Ross GW, Abbott RD, Petrovich H, et al. Frequency and characteristics of silent dementia among elderly Japanese-American men: the Honolulu-Asia Aging Study. JAMA. 1997;277:800-805:

[19.] McCartney JR, Palmateer LM. Assessment of cognitive deficit in geriatric patients: a study of physician behavior. J Am Geriatr Soc. 1985;33:467-471.

[20.] German PS, Shapiro S, Skinner EA, et al. Detection and management of mental health problems of older patients by primary care providers. JAMA. 1987;257:489-493.

[21.] Pinholt EM, Kroenke K, Hanley JF, et al. Functional assessment of the elderly: a comparison of standard instruments with clinical judgments. Arch Intern Med. 1987;147:484-489.

[22.] Mant A, Eyland EA, Pond DC, Saunders NA, Chancellor AH. Recognition of dementia in general practice: comparison of general practitioners' opinions with assessments using the Mini-Mental State Examination and Blessed dementia rating scale. Fam Pract. 1988;5:184-188.

[23.] Mohs RC, Breitner JCS, Silverman JM, Davis KL. Alzheimer's disease: a morbid risk among first-degree relatives approximates 50 percent by 90 years of age. Arch Gen Psychiatry. 1987;44:405-408.

[24.] Breitner JCS, Silverman JM, Mohs RC, Davis KL. Familial aggregation in Alzheimer's disease: comparison of risk among relatives of early- and late-onset cases, and among male and female relatives in successive generations. Neurology. 1988;38:307-312.

[25.] Goate A, Chartier-Harlin MC, Mullan M, et al. Segregation of a missense mutation in the amyloid precursor protein gene with familial Alzheimer's disease. Nature. 1991;349:704-706.

[26.] Levy-Lahad E, Wasco W, Poorkaj P, et al. Candidate gene for the chromosome 1 familial Alzheimer's disease locus. Science. 1995;269:973-977.

[27.] Sherrington R, Rogaev EI, Liang Y, et al. Cloning of a gene bearing missense mutations in early-onset familial Alzheimer's disease. Nature. 1995;375:754-760.

[28.] Corder EH, Saunders AM, Strittmatter WJ, et al. Gene dose of apolipoprotein E type 4 allele and the risk of Alzheimer's disease in late onset families. Science. 1993;261:921-923.

[29.] American College of Medical Genetics/American Society of Human Genetics Working Group on APOE and Alzheimer's Disease. Statement on the use of apolipoprotein E testing for Alzheimer's disease. JAMA. 1995;274:1627-1629.

[30.] Relkin NR, Tanzi R, Breitner J, et al. Apolipoprotein E genotyping in Alzheimer's disease: position statement of the National Institute on Aging/Alzheimer's Association Working Group. Lancet. 1996;347:1091-1095.

[31.] Stephenson J. Researchers find evidence of a new gene for late-onset Alzheimer disease. JAMA. 1997;277:775.

[32.] National Institute on Aging. Progress Report on Alzheimer's Disease 1.996. Bethesda, Md: National Institute on Aging; 1996. NIH publication 96-4137.

[33.] Ernst RL, Hay JW. The U.S. economic and social costs of Alzheimer's disease revisited. Am J Public Health. 1994;84:1261-1264.

[34.] Schulz R, O'Brien AT, Bookwala J, Fleissner K. Psychiatric and physical morbidity effects of dementia caregiving: prevalence, correlates, and causes. Gerontologist. 1995;35:771-791.

[35.] Russell LB, Gold MR, Siegel JE, Daniels N, Weinstein MS. The role of cost-effectiveness analysis in health and medicine: Panel on Cost-Effectiveness in Health and Medicine. JAMA. 1996;276:1172-1177.

[36.] American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th ed. Washington, DC: American Psychiatric Association, 1994.

[37.] McKeith LG, Galasko D, Kosaka K, et al. Consensus guidelines for the clinical and pathologic diagnosis of dementia with Lewy bodies (DLB): report of the consortium on DLB international workshop. Neurology. 1996;47:1113-1124.

[38.] Mega MS, Cummings JL, Fiorello T, Gornbein J. The spectrum of behavioral changes in Alzheimer's disease. Neurology. 1996;46:130-135.

[39.] Stern Y, Alpert M, Brandt J, et al. Utility of extrapyramidal signs and psychosis as predictors of cognitive and functional decline, nursing home admission and death in Alzheimer's disease: prospective analysis from the Predictors Study. Neurology. 1994;44:2300-2307.

[40.] Lerner AJ, Hedera P, Koss E, Stuckey J, Friedland RP. Delirium in Alzheimer disease. Alzheimer Dis Assoc Disord. 1997;11:16-20.

[41.] Francis J, Kapoor WN. Prognosis after hospital discharge of older medical patients with delirium. J Am Geriatr Soc. 1992;40:601-606.

[42.] Alexopoulos GS, Meyers BS, Young RC, Mattis S, Kakuma T. The course of geriatric depression with `reversible dementia': a controlled study. Am J Psychiatry. 1993;150:1693-1699.

[43.] Rasmusson DX, Brandt J, Steele C, et al. Accuracy of clinical diagnosis of Alzheimer disease and clinical features of patients with non-Alzheimer neuropathology. Alzheimer Dis Assoc Disord. 1996;10:180-188.

[44.] Larson EB, Edwards JK, O'Meara E, Nochlin D, Sumi SM. Neuropathologic diagnostic outcomes from a cohort of outpatients with suspected dementia. J Gerontol. 1996;51:M313-M318.

[45.] Pfeffer RI, Kurosaki TT, Harrah CH Jr, Chance JM, Filos S. Measurement of functional activities in older adults in the community. J Gerontol. 1982;37:323-329.

[46.] Teri L, Truax P, Logsdon R, Uomoto J, Zarit S, Vitaliano PP. Assessment of behavioral problems in dementia: the revised memory and behavior problems checklist. Psychol Aging. 1992;7:622-631.

[47.] Folstein MF, Folstein SE, McHugh PR. `Mini-Mental State': a practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res. 1975;12:189-198.

[48.] Herholz K, Adams R, Kessler J, et al. Criteria for the diagnosis of Alzheimer's disease with positron emission tomography. Dementia. 1990;1:156-164.

[49.] Kippenhan JS, Barker WW, Pascal S, Nagel J, Duara R. Evaluation of a neural-network classifier for PET scans of normal and Alzheimer's disease subjects. J Nucl Med. 1992;33:1459-1467.

[50.] Brust JC. Vascular dementia: still overdiagnosed. Stroke. 1983;14:298-300.

[51.] Snowdon DA, Greiner LH, Mortimer JA, Riley KP, Greiner PA, Markesbery WR. Brain infarction and the clinical expression of Alzheimer disease: the Nun Study. JAMA. 1997;277:813-817.

[52.] Arnold SE, Kumar A. Reversible dementias. Med Clin North Am. 1993;77:215-230.

[53.] Knapp MJ, Knopman DS, Solomon PR, Pendlebury WW, Davis CS, Gracon SI. A 30-week randomized controlled trial of high-dose tacrine in patients with Alzheimer's disease: the Tacrine Study Group. JAMA. 1994;271:985-991.

[54.] Rogers SL, Friedhof LT, Apter JT, et al. The efficacy and safety of donepezil in patients with Alzheimer's disease: results of a US multicentre randomized, double-blind, placebo-controlled trial. Dementia. 1996;7:293-303.

[55.] Kaufer DI, Cummings JL, Christine D. Effect of tacrine on behavioral symptoms in Alzheimer's disease: an open-label study. J Geriatr Psychiatry Neurol. 1996;9:1-6.

[56.] Knopman D, Schneider LS, Davis K, et al. Long-term tacrine (Cognex) treatment effects on nursing home placement and mortality: the Tacrine Study Group. Neurology. 1996;47:166-177.

[57.] Schneider LS. Clinical pharmacology of aminoacridines in Alzheimer's disease. Neurology. 1993 43(suppl 14):S64-S79.

[58.] Watkins PB, Zimmerman HJ, Knapp MJ, Gracon SI, Lewis KW. Hepatotoxic effects of tacrine administration in patients with Alzheimer's disease. JAMA. 1994;271:992-998.

[59.] Cognex (tacrine) [package insert]. Morris Plains, NJ: Warner-Lambert Co, 1996.

[60.] Aricept (donepezil) [package insert]. New York, NY: Pfizer Inc; 1997.

[61.] Sano M, Ernesto C, Thomas RG, et al. A controlled trial of selegiline, alpha-tocopherol, or both as treatment for Alzheimer's disease. N Engl J Med. 1997;336:1216-1222.

[62.] Baines S, Saxby P, Ehlert K. Reality orientation and reminiscence therapy: a controlled crossover study of elderly confused people. Br J Psychiatry. 1987;151:222-231.

[63.] Woods P, Ashley J. Simulated presence therapy: using selected memories to manage problem behaviors in Alzheimer's disease patients. Geriatr Nurs. 1995;16:9-14.

[64.] Logsdon RG, Teri L. The Pleasant Events Schedule-AD: psychometric properties of long and short forms and an investigation of its association to depression and cognition in Alzheimer's disease patients. Gerontologist. 1997;37:40-45.

[65.] Meyers K, Griggin M. The Play Project: use of stimulus objects with demented patients. J Gerotol Nurs. 1990;16:32-37.

[66.] Mintzer JE, Lewis L, Pennypaker L, et al. Behavioral intensive care unit (BICU): a new concept in the management of acute agitated behavior in elderly-demented patients. Gerontologist. 1993;33:801-806.

[67.] Teri L, Uomoto J. Reducing excess disability in dementia patients: training caregivers to manage patient depression. Clin Gerontol. 1991;10:49-63.

[68.] Teri L, Logsdon R, Uomoto J, et al. Treatment of depression in dementia patients: a controlled clinical trial. J Gerontol B Psychol Sci Soc Sci. 1997;52:159-166.

[69.] Patterson MB, Bolger JP. Assessment of behavioral symptoms in Alzheimer disease. Alzheimer Dis Assoc Disord. 1994;8(suppl 3):4-20.

[70.] Schneider LS, Pollock VE, Lyness SA. A meta-analysis of controlled trials of neuroleptic treatment in dementia. J Am Geriatr Soc. 1990;28:553-563.

[71.] Rada RT, Kellner R. Thiothixene in the treatment of geriatric patients with chronic organic brain syndrome. J Am Geriatr Soc. 1976;24:105-107.

[72.] Madhusoodanan S, Brenner R, Arujo L, et al. Efficacy of risperidone treatment for psychoses associated with schizophrenia, bipolar disorder, or senile dementia in 11 geriatric patients: a case series. J Clin Psychiatry. 1995;56:514-518.

[73.] Salzman C, Vaccaro B, Lieff J, et al. Clozapine in older patients with psychosis and behavioral disturbances. Am J Geriatr Psychiatry. 1995;3:26-33.

[74.] Chacko R, Hurley R, Jankovic J. Clozapine use in diffuse Lewy body disease. J Neuropsychiatry Clin Neurosci. 1993;5:206-208.

[75.] Jeste DV, Eastham JH, Lacro JP, Gierz M, Field MG, Harris MJ. Management of late-life psychosis. J Clin Psychiatry. 1996;57(suppl 3):39-45.

[76.] Grad R. Benzodiazepines for insomnia in community-dwelling elderly: a review of benefit and risk. J Fam Pract. 1995;41:473-481.

[77.] Tariot PN, Erb R, Leibovici A, et al. Carbamazepine treatment of agitation in nursing home patients with dementia: a preliminary study. J Am Geriatr Soc. 1994;42:1160-1166.

[78.] Mellow AM, Solano-Lopez C, Davis S. Sodium valproate in the treatment of behavioral disturbance in dementia. J Geriatr Psychiatry Neurol. 1993;6:205-209.

[79.] Sultzer DL, Gray KF, Gunay I, et al. A double-blind comparison of trazodone and haloperidol for treatment of agitation in patients with dementia. Am J Geriatr Psychiatry. 1997;5:60-69.

[80.] Sakauye KM, Camp CJ, Ford PA. Effects of buspirone on agitation associated with dementia. Am J Geriatr Psychiatry. 1993;1:894-901.

[81.] Nyth AL, Gottfries CG, Lyby K, et al. A controlled multicenter clinical study of citalopram and placebo in elderly depressed patients with and without concommitant dementia. Acta Psychiatr Scand. 1992;86:138-145.

[82.] Overman W Jr, Stoudemire A. Guidelines for legal and financial counseling of Alzheimer's disease patients and their families. Am J Psychiatry. 1988;145:1495-1500.

[83.] Cohen-Mansfield J, Rabinovich BA, Lipson S, et al. The decision to execute a durable power of attorney for healthcare and preferences regarding the utilization of life sustaining treatments in nursing home patients. Arch Intern Med. 1991;151:289-294.

[84.] Mittelman MS, Ferris SH, Shulman E, Steinberg G, Levin B. A family intervention to delay nursing home placement of patients with Alzheimer's disease: a randomized, controlled trial. JAMA. 1996;276:1725-1731.

[85.] Gwyther LP, Rabins PV. Practical approaches for treating behavioral symptoms of people with mild to moderate Alzheimer's disease. Prim Psychiatry. 1996;3:27-38.

[86.] Fitten LJ, Perryman KM, Wilkinson CJ, Little RJ, Burns MM, Pachana N. Alzheimer and vascular dementias and driving: a prospective road and laboratory study. JAMA. 1995;273:1360-1365.