Recognition and Management of Alzheimer’s disease in Long-term Care Facilities

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Disclosure

• Dr. Stefanacci serves as an Associate Professor in Health Policy/Public Health at the University of the Sciences.

• Practices as a LTC geriatrician in PACE program and is an owner/operator of several LTC facilities.

• Educated as part of speakers bureau for donepezil and memantine.

• Providing consulting services specific to dementia care to Novaritis, Janssen, Eisai, and Lundbeck.
Educational Objectives

• Explain the **causes** of Alzheimer’s disease
• Recognize the epidemiology and **prevalence** of Alzheimer’s disease
• Discuss the importance of screening and **diagnosis** for Alzheimer’s disease in LTC facilities
• Explain the pharmacologic and non pharmacologic **treatment** options for managing Alzheimer’s disease in LTC facilities
Three Things to Remember…

1. **Assessing of stage** of dementia with regard to Cognition, Function and Behavioral Issues is critical.

2. Strategy to **reduce the use of psychotropic medications** is a major focus.

3. Treatment with Antidementia agents needs to be assessed during **Transitions of Care (ToC)**.
Desired outcomes for Alzheimer’s disease diagnosis and treatment

1. Delay cognitive decline
2. Attain and maintain the highest practicable level of personal functioning
3. Decrease the severity and frequency of affective and behavioral disturbances
4. Delay institutionalization of the patient
5. Promote patient-centered decision-making
6. Reduce caregiver stress and burden
7. Enhance caregiver knowledge of and comfort with dementia care
Explain the **Causes** of Alzheimer’s disease
Alzheimer’s disease is an irreversible, progressive brain disease that slowly destroys memory and thinking skills.
Inside the Human Brain

- The brain has billions of neurons, each with an axon and many dendrites.
- To stay healthy, neurons must communicate with each other, carry out metabolism, and repair themselves.
- AD disrupts all three of these essential jobs.
Plaques and Tangles: The Hallmarks of AD

The brains of people with AD have an abundance of two abnormal structures:

- beta-amyloid plaques, which are dense deposits of protein and cellular material that accumulate outside and around nerve cells
- neurofibrillary tangles, which are twisted fibers that build up inside the nerve cell

An actual AD plaque

An actual AD tangle
Ten Warning Signs

1. **Memory loss**
   - Forgetting recently learned information
   - Most common early stage sign

2. **Difficulty performing familiar tasks**
   - Failure preparing a meal, placing a telephone call or playing a game
   - Hard to plan or complete everyday tasks

3. **Problems with language**
   - Forget simple words
   - Substitute words ("that thing for my mouth” instead of “toothbrush”)

4. **Disorientation to time and place**
   - Become lost in own neighborhood
   - Forget where they are and how they got there
   - Not know how to get back home

5. **Poor or decreased judgment**
   - Inappropriate dress (layers on a warm day or little clothing in cold)
   - Poor judgment (give away large sums of money to
Warning Signs

6. **Problems with abstract thinking**
   - Difficulty performing mental tasks (using numbers)

7. **Misplacing things**
   - Put things in unusual places (iron in freezer, wristwatch in sugar bowl)

8. **Changes in mood or behavior**
   - Rapid mood swings (calm to tears to anger for no apparent reason)

9. **Changes in personality**
   - Personality changes dramatically
   - Extremely confused, suspicious, fearful or dependent on family
   - Anxiety, agitation, and delusions or hallucinations are seen

10. **Loss of initiative**
    - May become very passive (sitting in front of the TV for hours, sleeping more than usual, not wanting to do
Preclinical AD

- Signs of AD are first noticed in the entorhinal cortex, then proceed to the hippocampus.
- Affected regions begin to shrink as nerve cells die.
- Changes can begin 10-20 years before symptoms appear.
- Memory loss is the first sign of AD.
AD and the Brain

Mild to Moderate AD

- AD spreads through the brain. The cerebral cortex begins to shrink as more and more neurons stop working and die.

- *Mild AD signs* can include memory loss, confusion, trouble handling money, poor judgment, mood changes, and increased anxiety.

- *Moderate AD signs* can include increased memory loss and confusion, problems recognizing people, difficulty with language and thoughts, restlessness, agitation, wandering, and repetitive statements.
Severe AD

• In severe AD, extreme shrinkage occurs in the brain. Patients are completely dependent on others for care.

• Symptoms can include weight loss, seizures, skin infections, groaning, moaning, or grunting, increased sleeping, loss of bladder and bowel control.

• Death usually occurs from aspiration pneumonia or other infections. Caregivers can turn to a hospice for help and palliative care.
<table>
<thead>
<tr>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
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<tbody>
<tr>
<td>Cognition</td>
<td>Function</td>
<td>Behavior</td>
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Stages of AD
Epidemiology and Prevalence of AD in LTC facilities
Projected AD Prevalence, * 2000-

*PhRMA projections calculated by applying current prevalence rates to population projections. Data sources: U.S. Census Bureau¹; Herbert et al.²
Prevalence by Ethnic Group

Cost of Care of People with AD

Year

2010 $172
2015 $202
2020 $241
2025 $307
2030 $408
2035 $547
2040 $717
2045 $906
2050 $1,078 Trillion

Cost ($billions)
Screening and Diagnosis
Recommendations for Best Practices in the Treatment of Alzheimer’s Disease in Managed Care

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ABSTRACT

Background: Alzheimer’s disease and related dementias (ADRDs) are increasingly recognized as important causes of impaired cognition, function, and quality of life, and elicit medical care utilization and costs in the older Medicare managed care population. Evidence-based clinical practice guidelines for ADRDs were published in 2001. More recent studies have resulted in the approval of new agents and demonstrated an expanded role for antidepressant therapy in various types of dementia, setting of care, stage of disease, and the use of combination therapy. However, these clinical guidelines have not been updated in the past few years.

Objective: The goal of this article was to provide the practical recommendations developed by a panel of experts that address these issues of early diagnosis, treatment, and care management of ADRDs. The panel also addressed the societal and managed care implications.

Methods: A panel of leading experts was convened to develop consensus recommendations for the treatment and management of dementia based on currently available evidence and the panel’s informed expert opinion. The panel comprised 12 leading experts, including clinical investigators and practitioners in geriatric medicine, neurology, psychiatry, psychology, managed care medical and pharmacy directors, a health systems medical director, and a health policy expert. In addition, articles were collected based on PubMed searches (2006–2008) that were relevant to the key issues identified. Search terms included Alzheimer’s disease, dementia, clinical practice guidelines, clinical trials, screening and assessment, and managed care.

Results: ADRDs represent a significant clinical and economic burden to individuals and society, including Medicare managed care organizations (MCOs). Appropriate utilization of antidepressant therapy and care management is vitally important to achieving quality of life and care for dementia patients and their caregivers, and for managing the excess costs of Alzheimer’s disease. The recommendations address relevant, practical, and timely concerns that are faced on a daily basis by practitioners and by Medicare MCO medical management programs in the care of dementia patients. These consensus recommendations attempt to describe a reasonable standard for the providers of care for patients with dementia. The panel recommendations support the use of antidepressant therapy and the use of antipsychotic therapy for ADRDs in different stages of disease and types of dementia in all clinical settings. The panel members evaluated the use of the 3 marketed cholinesterase inhibitors—donepezil, galantamine, and rivastigmine—as well as the 2 acetylcholine esterase inhibitors mecamylamine. Recommendations for using these medications are made with an appreciation of the difficulties in translating the results from investigational clinical trials into clinical practice.
Early Detection and Diagnosis of ADs Is Critical to Achieve Optimal Quality of Care

• ~76% of patients in clinical care are not diagnosed until their disease moderate severity
• Mean time from diagnosis to death is 6 to 9 years in academic studies vs 3 to 5 years in clinical practice
• Diagnosis should occur at the earliest possible stage to allow for treatment and planning
Screening for Cognitive Impairment Should Be Conducted, Especially for People Aged ≥75

Summary of Recommendations for Screening of Cognitive Impairment*

<table>
<thead>
<tr>
<th>Age Range, Y</th>
<th>Prevalence, %</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>65-74</td>
<td>3</td>
<td>Discretionary, driven by signs of cognitive impairment noted by either patients or caregivers</td>
</tr>
<tr>
<td>75-84</td>
<td>19</td>
<td>Screening should be done annually or biannually, or whenever the presence of cognitive impairment is noted</td>
</tr>
<tr>
<td>≥85</td>
<td>47</td>
<td>Annually for all patients</td>
</tr>
</tbody>
</table>

*Adapted with permission from Solomon and Murphy.
Elements of the Initial Annual Wellness Visit

- Past medical and surgical history and hospitalizations
- Family history
- Medications, including supplements/OTC drugs
- Current medical providers
- Height, body weight, BMI or waist circumference, BP
- **Cognitive screen**
- Depression screen
- Functional assessment
  - Minimum: Hearing, ADLs, fall risk and home safety screens
- Written personalized health plan based on US Preventive Services Task Force, and Advisory Committee on Immunization Practices
  - Individualized based on health status
- Appropriate referrals to health education or preventative counseling services
  - Including weight loss, physical activity, smoking cessation, fall prevention and nutrition
- “Voluntary Advance Care Planning”
  - Verbal or written
MMSE

- The MMSE was first published in 1975 as an appendix to an article written by Marshal F. Folstein, Susan Folstein.
- The authors later transferred all intellectual property rights to Psychological Assessment Resources (PAR).
- Despite the many free versions of the test available on the internet, PAR claims that the official version is copyrighted and must be ordered through them.
The Mini-Cog consists of a three item recall and a clock drawing test.

(1) First the person is asked to repeat three unrelated words, such as penny, apple, table.

(2) The person is then asked to draw a clock showing a specific time. Instructions: Draw the face of a clock and put the numbers in the correct positions. Then draw in the hands at ten minutes after eleven. (This is the same as the Clock Drawing Test).

(3) The patient is then asked to recall the three words.
Clock Drawing

- Provide patient with a piece of paper with a pre-drawn circle of approximately 10 cm in diameter.
- Indicate that the circle represents the face of a clock and ask the patient to put in the numbers so that it looks like a clock.
- Ask the patient to add arms so that the clock indicates the time "ten minutes after eleven."

Scoring
- Draws closed circle: Score 1 point
- Places numbers in correct positions: Score 1 point
- Includes all 12 correct numbers: Score 1 point
- Places hands in correct positions: Score 1 point
Animal Naming

The animal naming test has the person name as many animals as he or she can in one minute.

A score of 15 names or less is considered abnormal and 20 times more likely to occur in a person with Alzheimer's disease.
Coin-counting Exercise

• Ask your patient, “If I give you a nickel, a quarter, a dime and a penny, how much money have I given you?”

• When you avoid naming the coins in ascending or descending order of value, this task calls upon comprehension, working (or task completion) memory, planning and calculating skills.

• Inability to arrive at the correct total of 41 cents may indicate a need for further evaluation.
Assessment Tools: Cognition

- MDS 3.0 focus — resident assessment, clinical relevance and efficiency
- MDS introduced BIMS — a new screening tool
- Cognitive measurement
- Brief, interview-based assessment
- Sections
  - Repetition
  - Temporal Orientation
  - Recall
- Scores range from 0 (severe impairment) to 15 (cognitively intact)
When Cognitive Impairment Is Detected, a Structured Approach to Diagnosis Should Be Employed That Includes Evaluation of Cognition, Function, and Behavior

- Diagnostic algorithm should include a medical evaluation to identify potentially reversible causes of dementia
- Neuroimaging should be used to detect structural abnormalities
- Patients with rapid deterioration or abnormal neurologic signs should be referred to a specialist (neurologist, geriatrician, or geriatric psychiatrist)
- All other patients should be cared for by a primary care practitioner (PCP)
Neuroimaging Should Be Part of a Complete Diagnostic Assessment Except When the Initial Presentation Indicates a Typical Course of Progression and an Advanced Stage of Disease (Mini-Mental <10)

- CT scans or MRIs are recommended, according to guidelines of the American Academy of Neurology, to rule out:
  - Strokes, tumors, subdural hematomas, and normal-pressure hydrocephalus
- Panel specifies that individual health plans can decide to endorse the use of PET scans and single-photon emission CT scans, which are not required for diagnosis but can provide useful information
- Metabolic fluorodeoxyglucose-PET scanning is currently approved for payment by CMS, but only to diagnose FTD
Alzheimer’s biomarkers

New science describes course of disease from pre-symptomatic to dementia

[Diagram showing progression from normal to dementia stages with biomarkers like Amyloid PET, MRI volumetrics, and cognitive function]
Beta-Amyloid PET in Dementia and Neurodegenerative Disease

- PET is a minimally-invasive diagnostic imaging test. An injected radioactive tracer gives off subatomic particles, known as positrons, as it decays. PET uses a positron camera (tomograph) to measure the decay of these radioisotopes. The rate of tracer decay provides biochemical information on the tissue being studied. Certain PET tracers allow imaging of beta-amyloid plaque in the brain. It has been asserted that identification of such beta-amyloid plaque can inform the clinical management of patients with cognitive impairment who are being evaluated for possible AD or other causes of cognitive decline.

- Medicare currently does not cover beta-amyloid PET imaging.

TREATMENT
Treatment of AD Should Be Determined by the Stage at the Time of Diagnosis

- Mild, moderate, and severe stages of disease are arbitrarily defined and difficult to distinguish, and patients can transition through the continuum without clear milestones
- Panel recommendation is to use the following MMSE scores to identify patients at various stages of disease:
  - Mild disease: 24-20
  - Moderate disease: 19-10
  - Severe disease: <10
  - Profound disease: 0 or when a score cannot be obtained
Acetylcholinesterase (AChE) Inhibitors (AChEIs) and Namenda® (menantine)

AD is associated with neuronal death, resulting in reduced production of acetylcholine\(^1,2\)

Sustained activation of NMDA receptors may lead to excessive calcium influx, neuronal dysfunction, and cell death\(^4,5\)

AChEIs
AChEIs are thought to slow the breakdown of acetylcholine to compensate for its loss\(^1,3\)

Namenda® (memantine HCl) is believed to block sustained activation of NMDA receptors caused by abnormal glutamatergic activity\(^4,6\)

### FDA-Approved Treatments for AD

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Generic Name</th>
<th>Approved</th>
<th>AD Indication</th>
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<tbody>
<tr>
<td>Cognex®</td>
<td>tacrine</td>
<td>Sept 1993</td>
<td>Mild to moderate</td>
</tr>
<tr>
<td>Aricept® (5 mg, 10 mg)</td>
<td>donepezil</td>
<td>Nov 1996</td>
<td>Mild to moderate</td>
</tr>
<tr>
<td>Aricept® (10 mg)</td>
<td>donepezil</td>
<td>Oct 2006</td>
<td>Mild to severe</td>
</tr>
<tr>
<td>Aricept® (23 mg)</td>
<td>donepezil</td>
<td>July 2010</td>
<td>Moderate to severe</td>
</tr>
<tr>
<td>Exelon®</td>
<td>rivastigmine</td>
<td>April 2000</td>
<td>Mild to moderate</td>
</tr>
<tr>
<td>Exelon® Patch</td>
<td>rivastigmine transdermal system</td>
<td>July 2007</td>
<td>Mild to moderate</td>
</tr>
<tr>
<td>Razadyne®</td>
<td>galantamine</td>
<td>Feb 2001</td>
<td>Mild to moderate</td>
</tr>
<tr>
<td>Namenda®</td>
<td>memantine HCl</td>
<td>Oct 2003</td>
<td>Moderate to severe</td>
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Cognex is a registered trademark of Shionogi Pharma, Inc.
Aricept is a registered trademark of Eisai Company Ltd.
Exelon is a registered trademark of Novartis Pharmaceuticals Corporation.
Razadyne is a registered trademark of Ortho-McNeil Neurologics, Inc.
Namenda is a registered trademark of Forest Laboratories, Inc.
Treatment Strategies Under Development for AD

AD Clinical Pipeline, by Mode of Action, November 2012

- Beta amyloid
- Neurotransmitter
- Neuroprotection
- Metabolic
- Tau
- Beta amyloid and tau
- Other
- Unknown

Number of Products in the Pipeline

Source: Datamonitor; Citeline Pipeline Database, Copyright © 2012, reprinted with permission.
All Patients Should Receive the Same Course of Treatment, Regardless of the Setting of Care

- All patients with newly diagnosed mild to moderate AD should be started on a ChEI and the setting of care should not determine the course of treatment
- Recommendations apply to patients in community settings, as well as assisted living and long-term care (LTC) facilities
The Use of Other Medications to Treat Dementia—Such as Hormones, Nutraceuticals, and Vitamins—Is Not Recommended

- Estrogens, dehydroepiandrosterone, ginkgo biloba, vitamins E and C, and other medications and nutraceuticals without demonstrated efficacy in AD are not recommended.
- Although a single study suggested that high-dose vitamin E may have value in the treatment of AD, the panel does not recommend treatment with high-dose vitamin E because other studies suggest it may elevate the risk for mortality.
Patients and Caregivers Should Be Counseled With Regard to “Realistic” Expectations of Antidementia Pharmacologic Treatment

– An “effective” response to antidementia therapy occurs when symptoms improve or remain the same for 6 months on a maximum dose
– A “good” response to antidementia therapy occurs when the patient’s symptoms progress more slowly than expected without therapy
– A “poor” response occurs when the patient’s symptoms process at a rate consistent with no therapy
Geriatric Care Management and Counseling Should Be Provided to All Patients With a Diagnosis of AD and to Their Caregivers

Case managers in MCO plans should be trained in specific elements of AD care management, including

- Referral coordination
- Caregiver and family support
- Placement assistance
- Social support
  - Home care and adult day care
- Referrals for discussions on advanced directives, proxy assignment, durable power of attorney, and financial planning for LTC and medical expenses
Potentially reversible causes of rapid deterioration include

- Infections or other metabolic disturbances causing delirium
- Poorly controlled medical comorbidities such as:
  - Cerebral vascular hypoperfusion due to CHF
  - Ischemia or stroke due to hypertension
  - Diabetes
  - Hyperlipidemia
  - Atrial fibrillation
  - Presence of poorly controlled behavioral disturbances or mood disorders
- Impact of other commonly used drugs with anticholinergic activity, such as:
  - Drugs used to treat urinary incontinence
  - Cimetidine
  - Prednisolone
  - Theophylline
  - Digoxin
  - Nifedipine
  - Furosemide
  - Ranitidine
  - Isosorbide
  - Digitrate
  - Warfarin
  - Dipyridamole
  - Codeine
  - Triamterene with hydrochlorothiazide
  - Captopril
CHEIs and Memantine May Be Discontinued in Patients Who Advance to “Profound” Disease and Who Have Lost All Cognitive and Functional Abilities

- Although the panel recommended ongoing pharmacology throughout the course of the disease, it also stated that a patient who is in the profound stage of the disease may be discontinued from therapy.

- The panel defined profound disease as a stage when there is no preserved cognition or function.
Antidementia Therapy Should Be Continued During Acute Illness and Hospitalizations, Unless Contraindicated; if Stopped, It Should Be Resumed as Quickly as Possible
Treatment Options
Psychotic Medication Use

Recommendations:

• Facilitate access to information necessary to ensure accurate coverage and reimbursement determinations.
• Assess whether survey and certification processes offer adequate safeguards against unnecessary antipsychotic drug use in nursing homes.
• Explore alternative methods beyond survey and certification processes to promote compliance with Federal standards regarding unnecessary drug use in nursing homes.
• Take appropriate action regarding the claims associated with erroneous payments identified in our sample.

Findings:

• Fourteen percent of elderly nursing home residents had Medicare claims for atypical antipsychotic drugs.
• Eighty-three percent of Medicare claims for atypical antipsychotic drugs for elderly nursing home residents were associated with off-label conditions; 88 percent were associated with the condition specified in the FDA boxed warning.
• Fifty-one percent of Medicare atypical antipsychotic drug claims for elderly nursing home residents were erroneous, amounting to $116 million.
Antipsychotic Medication
Quality Measures

- The national average for the percentage of long-stay residents who received an antipsychotic during this time period was 23.9%.

- A 15% reduction in that rate would mean a national prevalence of 20.3%.

- Only about a 4% reduction has been realized to date.
AGS Recommendation: Don’t use antipsychotics as first choice to treat behavioral and psychological symptoms of dementia.

People with dementia often exhibit aggression, resistance to care and other challenging or disruptive behaviors - in such instances, antipsychotic medicines are often prescribed, but they provide limited benefit and can cause serious harm, including stroke and premature death.
Recommendations for Improved Psychotropic Medications

- Limit initial antipsychotic drug orders to 72 hours
- Not permit any PRN antipsychotic drug orders
- Restrict psychiatric team to recommendations that must be ordered by attending physician
CMS Recommendation

• Most importantly, each facility should be working with its pharmacy vendor and consultant pharmacist to use facility-level pharmacy data to identify residents on antipsychotic medications.

• Each resident should be examined by the interdisciplinary team, including the attending physician and pharmacist, to determine whether the dose of the medication could be gradually reduced or discontinued.
AGS Recommendation: Don’t recommend percutaneous feeding tubes in patients with advanced dementia; instead offer oral assisted feeding.

• Careful hand-feeding for patients with severe dementia is at least as good as tube-feeding for the outcomes of death, aspiration pneumonia, functional status and patient comfort.
• Food is the preferred nutrient.
• Tube-feeding is associated with agitation, increased use of physical and chemical restraints and worsening pressure ulcers.
Overdue the amount of stimulation

- Shift change,
- Busy / Confusing dining room
- Activities
- Bright lights and noise at nighttime
3 R’s:
- Repeat
- Reassure
- Redirect
  - Used to stress the importance of patience and coolness during interactions and redirection
  - Also to remind the difficulty of patient’s situation and the need to be supportive and not demanding
Three Things to Remember…

1. **Assessing of stage** of dementia with regard to Cognition, Function and Behavioral Issues is critical.

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I wrote down some questions...