Management of Dementia Care for Patients and Caregivers

Elizabeth A. Crocco, M.D.
Associate Clinical Professor
Chief, Division of Geriatric Psychiatry
Department of Psychiatry and Behavioral Sciences
University of Miami Miller School of Medicine

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Learning Objectives

• Utilize evidence-based approaches to classify symptomatology and diagnose patients with dementia
• Implement pharmacologic and nonpharmacologic interventions for dementia management
• Assist caregivers in providing optimal care and support for patients with dementia
**Demographic Transition**

- By 2045, average life expectancy in the US will be 80 years
- By 2030, almost 20% of Americans will be 65+
- By 2030, the proportion of older Hispanics will nearly double from 5.6% to 10.9%

US Census Bureau, 2010

**Epidemiology**

- Dementia is a highly prevalent condition
- In 2010, the total number of people with dementia worldwide was 35.6 million\(^1\)
  - Projected to nearly double in the next 20 years
- Estimated prevalence of dementia in the community
  - 3% in 65- to 74 year-olds
  - >30% in 85 years and older\(^2\)

\(^1\) World Health Organization, 2010
\(^2\) Herbert LG et al. Neurology, 2013
Prevalence of Caregiving

- 29% of the U.S. adult population is providing care for someone who is disabled, seriously ill or aged; 59% of the adult population expects to be a family caregiver in the future.\(^1\)

- 66% of caregivers (43.5 million) are providing care for an adult aged 50+ and 15 million adults are providing care for someone with Alzheimer’s disease or other dementia.\(^2\)

- More than 7 out of 10 people with AD live at home and almost 75% of home care is provided by family or friends.\(^3\)

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Major Neurocognitive Disorders

*Encompasses Dementia*

- Significant cognitive decline from previous level in 1 or > cognitive domains
  - Concern of patient/informant/clinician
  - Impairment documented by NP test or quantified clinical assessment
  - Impairment *interferes* with IADLs
  - Specify etiology

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Causes of Dementia

- Alzheimer’s disease—60-80% of cases
- Vascular disease—5-20%
- Diffuse Lewy Body disease—2-30%
- Frontotemporal dementia—5%
- Potentially reversible causes account for less than 1% of cases

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\(^1\) The National Alliance for Caregiving and AARP, 2009
\(^2\) Alzheimer’s Association, 2011
\(^3\) Family Caregiver Alliance, 2012

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DSM-5, American Psychiatric Association, 2013

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Causes of Dementia

Potentially reversible causes include:

• Medication/Alcohol/drugs
• Endocrine—thyroid disease
• Brain Trauma/Hydrocephalus (NPH)
• Depression
• Infection—tertiary syphilis
• Vitamin deficiencies, B12, thiamine

Other Causes of Dementia

• Traumatic Brain Injury
• HIV
• Huntington’s Disease
• Creutzfeldt-Jakob Disease/Prion Disease
• Parkinson’s Disease

Alzheimer’s Dementia

• Most common cause of dementia
• Usually occurs > age 65, but can be seen in persons as young as 50
• Age is the greatest risk factor
• > 25% over 80 years have the disorder
• Slowly progressive disorder
Alzheimer’s Dementia

- Early in the course of the illness, the most prominent symptom is memory loss.
- The illness progression is slow and insidious.
- As the disease progresses, other cognitive domains become affected, such as language, ability to carry out complex tasks, orientation.
- Behavior problems later become prominent.

Vascular Dementia

- Dementia is usually caused by focal infarcts or extensive small vessel disease.
- Patients tend to have focal neurological signs and symptoms.
- Memory may not be the earliest or most prominent symptom.
- Depression, and emotional lability can be more prominent than in AD.

Diffuse Lewy Body Dementia

- Patient have Parkinson's symptoms such as gait disturbance, rigidity, slow movements, tremors.
- Often have behavioral problems, most commonly complex visual hallucinations.
- Progress more rapidly than Alzheimer’s disease.
- Fluctuating cognition with variation in attention more prominent.
- Falls and syncopy.
- Highly sensitive to antipsychotics.
Frontotemporal Dementia

- Occurs more commonly in patients aged 50-60 years.
- Psychosis is not typically prominent.
- Frontal signs such as impulsivity, disinhibition, apathy and avolition occur.
- Cognitive domains such as language, visuospatial skills and executive function are affected early.

Dementia Evaluation

- History is essential
- Needs an informant/caregiver source of information
- Obtain history from patient and informant separately
- Time line and rate of progression is needed to help establish etiology

Dementia History

Assess cognitive impairment including:
1) Learning and memory
2) Language
3) Spatial ability/orientation
4) Attention
5) Reasoning ability/executive functioning
6) Ability to handle complex tasks/motor functioning
7) Social cognition
Dementia History

Instrumental Activities of Daily Living (IADLs)
- Managing medications/appointments
- Managing finances
- Cooking/cleaning
- Shopping
- Using appliances/telephone/computer
- Assess driving safety
- Assess access to dangerous weapons

Activities of Daily Living (ADLs)
- Bathing
- Eating
- Dressing
- Toileting
- Grooming
- Transferring
- Walking

Assess neurological history:
• Gait disturbance
• Tremor
• Slowing of motor movements
• Focal weakness/loss of sensation
• History of stroke or cerebrovascular accident (CVA) and risk factors
Dementia Examination

- Examining the patient
- Physical
- Neurological
- Mental Status Exam

Dementia Work up

- Psychometrics/Neuropsychological testing
- Neuroimaging—structural MRI, CT, PET, amyloid imaging
- Labs including CMP, CBC, thyroid studies, B12, syphilis serology, U/A
- EEG
- LP

Neuropsychological/Cognitive Testing

Memory
- Visual Learning Test-Imagery
- Visual Object Memory Test
- Repeatable Visual Learning Test
- Boston Naming Test

Attention
- Stroop Test
- Trail Making Test A

Executive Function
- Wisconsin Card Sorting Test
- Trail Making Test B

Verbal Learning Test Hopkins
- Fuld Object Memory Test
- Rey Auditory Verbal Learning Test
- Wechsler Memory Scale

Language
- Boston Naming Test

Fluency
- Verbal Fluency

Visuospatial Abilities
- Block design
- Visual Reproduction
- Hooper Visual Organization Test

Repetition
- Minnesota Card Sorting Test

Perception
- Trail Making Test C
- Trail Making Test F
PET IMAGING OF AMYLOID WITHIN THE BRAIN

- Pathologic diagnosis of Alzheimer’s disease (AD) requires β-amyloid plaques.
- PET radiotracers can now detect amyloid plaques in vivo.
- Applications of PET amyloid imaging in AD and aging is currently not widely used in practice.

[11C] PIB and PET: In Vivo Imaging of β-Amyloid Plaques
PET images using florbetapir to highlight beta-amyloid plaque. Cognitively normal subject and an amyloid-negative patient with MCI. Amyloid positive patient with Alzheimer's disease, as well as an amyloid positive patient with MCI. All images obtained from the journal, Neurology.

Alzheimer’s Diagnosis

- Lumbar Puncture
- CSF biomarkers for early Alzheimer’s disease (AD):
  - Aβ levels
  - Tau protein
  - Aβ1-42
  - Phospho-tau-231
- Those with MCI have mean concentrations between those with AD and controls, but closer to AD individuals who decline to dementia.
  - Phospho-tau measurements could help identify cases of prodromal AD.

Gaborie, Kugel, & Firth, 2004; Gus et al., 2013; Andreasen & Blennow, 2005

Management of Dementia

Detection of relevant medical conditions should be treated and managed optimally as early as possible.
- Hypertension
- Diabetes mellitus
- Coronary Artery Disease
- CVA/Stroke prevention
- Elevated cholesterol and lipids
- Sleep Apnea/Insomnia
- Substance Use
- Depression

Management and Treatment

• Pharmacological Approaches:
  – Cholinesterase inhibitors: FDA indicated for mild and moderate to severe AD
    • Donepezil
    • Rivastigmine
    • Galantamine
  – NMDA antagonists: FDA indicated for Moderate to Severe AD only
    Memantine

• Other Pharmacological Approaches:
  – Antioxidants (Vitamin E, Vitamin B Complex)
  – NSAIDS

• Investigational Drugs
  – Amyloid immunization techniques
  – Aβ production/deposition reducers
  – γ or β secretase inhibitors

Prevalence of Behavioral Disturbances in Dementia

• Psychosis 40%
• Depression 25%
• Non-psychotic Agitation 75%
• Threatening or Violent 25%
• Anxiety 40%
DSM-5 Criteria Psychosis in Alzheimer’s Dementia

- Visual Hallucinations
- Auditory Hallucinations
- Delusions
- Must be present at least one month

Psychosis in Dementia

- Consequences:
  - More rapid decline cognitively
  - More rapid decline functionally
  - Increased mortality
  - Increased long term care admissions

Agitation

- Excessive motor or verbal activity that is one of the following:
  - Disruptive
  - Unsafe
  - Distressing to the patient
- Interferes with care and is not because of need

Agitation

• Physical: Hitting, Threats, Pacing, Accusations, Kicking

• Verbal: Name-calling, Biting, Obscenities, Pushing, Complaining, Spitting, Attention-seeking, Scratching, Screaming


Non-Pharmacologic Interventions

- Step 1: Find cause of agitation
  • Pain
  • Discomfort
  • Lack of stimulation
  • Medical illness
  • Environmental stressors

- Step 2: Modify it through individualized interventions
  • Discomfort management
  • Physical environment


Potential Medical Causes of Agitation

• Infection
• Impaction
• Pain
• Metabolic disturbances
• Medications
  - Sedative/hypnotics/benzodiazepines
  - Anticholinergic medications
  - Pain medications/narcotics
• Delirium

Provide Activities

- During early stages, patients may be aware of losing mental and functional abilities
  - Fear, depression, anxiety
  - Feel they are a burden to their caregivers
- Patient should remain active and involved
  - Allow them to make decisions
  - Support efforts to remain independent, even if tasks are not done timely or perfectly
  - Tailor tasks to patient’s abilities
- Give them tasks, but do not push them too far
- Explore the role of Day Care or other structured activities

Help Avoid Confusion

- Use familiar objects to help recognize location
- Label often used rooms – bathrooms
- Provide visual cues to time and place
- Keep regular routines for daily activities
- Focus on consistency – keep objects in the same place
- Keep floor surfaces uncomplicated – avoid patterns
- Avoid mirrors for decorating – may cause anxiety if they don’t recognize their own reflection

Wandering

- Potentially dangerous
- Find out why the patient wanders
  - Trying to find a familiar object
  - This was their routine
- Lock outside doors, use alarms that indicate when patient goes outdoors or into unsafe areas
- Provide a safe place for wandering – enclosed yard
- Recognize when placement is a better option

Alzheimer's Disease Education and Referral Center/National Institute on Aging, 2012

Communication

Communicating can be very challenging
– Evaluate for hearing or vision problems
– Don’t argue – offer reassurance and help focus attention on something else
– Use short, simple, familiar words
– Present one idea at a time
– Use a calm tone of voice
– Use touch to reassure and show that you are listening
– Pay attention to patient’s tone of voice and gestures for cues as to what they are feeling

Alzheimer’s Disease Education and Referral Center/National Institute on Aging, 2012

Bladder and Bowel Problems

• Rule out a medical condition (e.g. UTI)
• Encourage elderly patient to use the bathroom on a regular schedule (e.g. Q2h)
• Restrict liquids prior to bedtime
• Remove or cover objects that can be confused with the toilet
• Consider using absorbent pads or briefs
• Educate the caregiver on how the patient is not able to control their incontinence

Alzheimer’s Disease Education and Referral Center/National Institute on Aging, 2012

Pharmacological Treatment

• Behavioral interventions are effective in managing many of these behavioral disturbance and is first line.1
• Clinical trials have failed to establish efficacy of antipsychotic medications for dementia related behavioral disruption2
• Atypical antipsychotics are modestly effective in the management of psychosis and agitation in the elderly.
• Benefits vs risks/adverse events must be weighed in decision to treat with medications as well as in selection of agent.

Pharmacological Treatment

- No FDA-approved treatment
- Off-label use of psychotropic medications for aggression and agitation
- Antipsychotic medications
  - Side effects
  - Black Box Warning - increased mortality with atypical antipsychotics in the elderly
  - 30-60% of NH residents with dementia are prescribed antipsychotics commonly for longer than a year

1. Levenson D: Caring for the ages 2003
3. Rochon et al; Arch Intern Med 2007

Research evidence for efficacy of atypical antipsychotics from placebo controlled trials in agitation/psychosis in dementia (adapted from Maglione et al., 2011)

<table>
<thead>
<tr>
<th>Antipsychotic</th>
<th>Symptoms Domain</th>
<th>Confidence</th>
<th>Effect</th>
<th>SMD (95% CI)</th>
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<td>Aripiprazole</td>
<td>Overall BPSD</td>
<td>Moderate</td>
<td>Small</td>
<td>0.20 (0.04, 0.35)</td>
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<td></td>
<td>Agitation</td>
<td>Low</td>
<td>Non-significant</td>
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<tr>
<td></td>
<td>Psychosis</td>
<td>Low</td>
<td>Non-significant</td>
<td>0.14 (-0.02, 0.29)</td>
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<tr>
<td>Olanzapine</td>
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<td>0.12 (0.00, 0.25)</td>
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<td>Agitation</td>
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<td>0.10 (0.07, 0.31)</td>
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<tr>
<td></td>
<td>Psychosis</td>
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<td>Non-significant</td>
<td>0.05 (-0.07, 0.17)</td>
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<td>Quetiapine</td>
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<td>Agitation</td>
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<td>0.06 (-0.14, 0.25)</td>
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<tr>
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<td>Psychosis</td>
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<td>SGAs</td>
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<td>Low</td>
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</table>

Treatment of Agitation in Dementia

- Cholinesterase inhibitors can be helpful for the prevention of behavioral agitation.
- SSRIs, such as citalopram, escitalopram, and sertraline are useful particularly when agitation is due to depression or anxiety.
- There is incidental evidence for trazodone at low doses (12.5-50 mg).
Treatment Algorithm for Agitation and Aggression in Demented Patients


Caregiver Intervention

- There have been numerous studies aimed at developing interventions for caregivers.
  - Alleviating burden
  - Depression
  - Increasing general subjective well-being
  - Increasing ability/knowledge
  - Delaying placement
  - Many caregivers do not have access to or take advantage of existing programs and resources.


Benefits of Technology-Based Interventions

- Non-pharmacological intervention approaches are successful in improving caregiver outcomes.
- Technology-based intervention approaches have the potential of being beneficial to both caregivers and care recipients:
  - enhanced social support
  - enhanced knowledge
  - promotion of well-being and physical health
  - assessment
  - skills training
  - monitoring

Dementia is an extremely complex illness that is commonly seen in primary care settings.

Dementia leads to cognitive, neurological, psychiatric/behavioral as well as physical/functional impairments that need to be managed.

The role of the caregiver is crucial in the proper diagnosis and management of patients with neurocognitive impairments.

Optimal management may require both nonpharmacological and pharmacological approaches to this disease process.