The Dementia Epidemic: An Approach to Screening and Management

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Learning Objectives

At the conclusion of this presentation participants should be able to:

1. Review the characteristics and clinical findings of Alzheimer’s disease and related dementias
2. Understand the current evidence base for pharmacologic interventions for dementia (including risks and benefits)
3. Outline a rational approach to screening for dementia and communicating with patients and families who are faced with the diagnosis
Introduction: The Epidemic

- Dementia is common in aging population
- Medical interventions targeted at delaying onset or slowing progression of disease
- Without a curative treatment, dementia remains a chronic progressive medical condition and in later stages is a terminal illness
- Phenotype: functional decline, dependency on caregivers, morbidity, and mortality
- Increasing costs: caregivers & health system
Clinical Case

Mrs. S is a 94 year-old woman

- 5 year history of progressive memory loss
- Needs increasing assistance with daily activities
- New Incontinence of bladder
- 2 recent hospital admissions for dehydration, urinary tract infection, and pneumonia
- Now using walker, sustained fall one month prior
- Increased “agitation” and confusion at night
Cognitive Dysfunction

Normal Aging

Mild Cognitive Impairment

Alzheimer’s Disease

Dementia
Dementia: Medical Diagnosis

1. Progressive loss of intellectual abilities
2. Impairment in memory and at least one other cognitive domain
3. Interferes with daily functioning
4. Not due to other medical disorder
Common Types of Dementia:

1. Alzheimer’s Disease
2. Vascular Dementia
3. Dementia with Lewy Bodies
4. Fronto-Temporal Dementia
5. Parkinsonism (subcortical dementias)
Alzheimer’s Disease

- Abnormality in amyloid protein metabolism in brain
- Formation of neurofibrillary tangles (dead neurons) and amyloid plaques
- Only definitive diagnosis is at autopsy
Alzheimer’s Disease

Facts
- 5.2 million Americans with Alzheimer’s disease
- One in 9 persons over age 65 and 1/3 over age 85
- Every 68 seconds someone develops Alzheimer’s
- 1 in 3 older adults will die with dementia

Mortality
- Number of deaths: 83,494
- 400,000 people died with Alzheimer’s disease
- Cause of death rank: 6

Source: Alzheimer’s Disease Facts and Figures (Alzheimer’s Association)
Prevalence of Alzheimer’s Disease

Future Projections by Age Group

Number of People (millions)

Year

2000 2010 2020 2030 2040 2050

Age 65-74
Age 75-84
Age 85+
Total

Data Source: Evans, DA et al. Archives of Neurology August 2003
Alzheimer’s Disease: Costs

- Total (Aggregate) Costs: $226 billion (cost of $17.5 million per hour to taxpayers)
- 70% of costs paid by Medicare and Medicaid
- 70% of those with dementia live at home
- 75% of home care provided by family and friends
- 50% nursing home residents have Alzheimer's or related dementias

Source: Alzheimer’s Association Facts
1 in 8 hospitalized patients with AD who develop delirium will have at least one adverse outcome: death, institutionalization, or cognitive decline.
Alzheimer’s Disease: Mortality

- Poor survival in advanced dementia following acute illness
- Survival after hip fracture or pneumonia
- 6 month mortality >50% (compared to 12% cognitively intact)

Dementia Caregivers

- Reported at least 46 hrs/week assisting patient with daily personal care (n=217)
- 50% felt they were “on duty” 24 hrs/day
- High level of depressive symptoms

Alzheimer’s Phenotype: Early Stages

- Memory problems frequently first reported
- Earlier changes usually evident (months to years in advance of formal diagnosis)
- Common Problems: managing finances, household chores, shopping, cooking, taking medications, driving
- Early changes attributed to aging by family
- Short term memory mostly affected and distant (remote) memory often remains intact
Alzheimer’s Phenotype: Advanced Stages

Loss of ability to perform activities of daily living (ADL):

- Dressing (grooming)
- Bathing (hygiene)
- Toileting (incontinence)
- Walking (mobility)
- Eating (feeding)
Other Common Changes

- Progressive personality change
- Behavior Changes (impulsivity, sexual disinhibition, anger, argumentative, hoarding)
- Poor judgment, insight, problem-solving
- Later stages: Agitation, Restlessness, and Wandering
- Apathy is common in early stages (social withdrawal, loss of interest)
DEMENTIA
Phenotype

Cognition

Behavior

Function
End-of-Life Care: Trajectories of Dying:

Cancer

Dementia

Source: Lunney, JR et al. JAMA 2003
Dementia Treatment

- No “cure” exists for Alzheimer’s
- Medications may slow the progression and/or improve some symptoms of the disease
- Advertising suggest greater benefit than likely exists for most patients
Cognitive Enhancers?

Two main medication types:

1) Acetylcholinesterase inhibitors
   - Aricept (donepezil)
   - Exelon (rivastigmine)
   - Razadyne (galantamine)

2) Namenda (memantine)
Pooled evidence to date for Acetylcholinesterase inhibitors favor drug intervention for aggregate outcomes

But are measures clinically relevant?

Are the patients all the same?

Donepezil (Aricept)

Frequency Distribution of CIBIC plus Scores at Week 12.
(Clinician’s Interview Based Impression of Change plus caregiver input scale)
Donepezil (Aricept)

Time Course of the Change from Baseline in ADCS-ADL-Severe Score for Patients Completing 6 Months of Treatment
Current Treatment: Symptom Management

![Diagram showing the decline in function over time with a peak at 100% and a trough at 0%.](image)

Courtesy: Frederick J. Marshall, M.D.
Dementia Challenge: Bending the Curve

Time

100%

Function

onset

0%

Time

Courtesy: Frederick J. Marshall, M.D.
Long term donepezil did not delay institutionalisation or progression to disability in patients with Alzheimer’s disease


- 3 years
- 566 subjects
- Double blinded RCT
- Intention to treat analysis
- No delay in nursing home placement with donepezil
Potential Side Effects: Acetylcholinesterase Inhibitors

- Nausea/Vomiting
- Weight loss
- Peptic Ulcer/GI bleed
- Dizziness/falls

- Obstructive uropathy
- Seizures
- Asthma exacerbation
- Cardiac (heart block)
If no good treatment or cure even exists, should we even be screening for dementia?
Screening for Cognitive Impairment in Older Adults: U.S. Preventive Services Task Force Recommendation

<table>
<thead>
<tr>
<th>Population</th>
<th>Community-dwelling adults who are older than 65 years and have no signs or symptoms of cognitive impairment</th>
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<tbody>
<tr>
<td>Recommendation</td>
<td>No recommendation. Grade: I statement</td>
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<tr>
<td>Risk Assessment</td>
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- Increasing age is the strongest known risk factor for cognitive impairment. Other reported risk factors for cognitive impairment include cardiovascular risk factors (such as diabetes, tobacco use, hypercholesterolemia, and hypertension), head trauma, learning disabilities (such as the Down syndrome), depression, alcohol abuse, physical frailty, low education level, low social support, and having never been married.

- The most widely studied instrument is the Mini-Mental State Examination.

- Other instruments with more limited evidence include the Clock Drawing Test, Mini-Cog Test, Memory Impairment Screen, Abbreviated Mental Test, Short Portable Mental Status Questionnaire, Free and Cued Selective Reminding Test, 7-Minute Screen, Telephone Interview for Cognitive Status, and Informant Questionnaire on Cognitive Decline in the Elderly.

Screening Tests
- Screening tests for cognitive impairment in the clinical setting generally include asking patients to perform a series of tasks that assess 1 or more cognitive domains (memory, attention, language, and visuospatial or executive functioning).

- Pharmacologic treatments approved by the U.S. Food and Drug Administration include acetylcholinesterase inhibitors and memantine. Nonpharmacologic interventions include cognitive training, lifestyle behavioral interventions, exercise, educational interventions, and multidisciplinary care interventions. Some interventions focus on the caregiver and aim to improve caregiver morbidity rates and delay institutionalization of persons with dementia.

<table>
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<tr>
<th>Balance of Benefits and Harms</th>
<th>The evidence on screening for cognitive impairment is lacking, and the balance of benefits and harms cannot be determined.</th>
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<tr>
<td>Other Relevant USPSTF</td>
<td>The USPSTF has made recommendations related to several of the risk factors for cognitive impairment, including counseling on tobacco cessation, alcohol use, healthful diet, physical activity, and falls prevention and screening for high cholesterol, hypertension, and depression. These recommendations are available at <a href="http://www.uspreventiveservicestaskforce.org">www.uspreventiveservicestaskforce.org</a>.</td>
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<tr>
<td>Recommendations</td>
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For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, please go to www.uspreventiveservicestaskforce.org.
Special Article

Brain Health: The Importance of Recognizing Cognitive Impairment: An IAGG Consensus Conference

John E. Morley MB, BCh a,*, John C. Morris MD b, Marla Berg-Weger PhD, LCSW c, Soo Borson MD d, Brian D. Carpenter PhD b, Natalia del Campo PhD e, Bruno Dubois MD f, Keith Fargo PhD g, L. Jaime Fitten MD h, Joseph H. Flaherty MD i, Mary Ganguli MD, MPH j, George T. Grossberg MD k, Theodore K. Malmstrom PhD l, Ronald D. Petersen PhD, MD m, Carroll Rodriguez BSW n, Andrew J. Saykin PsyD o, Philip Scheltens MD p, Eric G. Tangalos MD q, Joe Verghese MBBS r, Gordon Wilcock MD s, Bengt Winblad MD t, Jean Woo MD u, Bruno Vellas MD v

International Association of Gerontology and Geriatrics (IAGG) and its Global Aging Research Network (GARN) expert consensus panel

August 2015
Consensus Panel in Support of Screening:

1. Validated screening tests are available that take 3 to 7 minutes to administer

2. Combination of patient- and informant-based screens is the most appropriate approach for identifying early cognitive impairment

3. Early cognitive impairment may have treatable components

4. Emerging data support a combination of medical and lifestyle interventions as a potential way to delay or reduce cognitive decline
Cognitive Assessment
Mini-Cog Assessment

1. 3 Item (word recall)
2. Clock-Drawing – “ten minutes after eleven”
Montreal Cognitive Assessment (MoCA)

www.mocatest.org
Informant Based Instruments for cognitive impairment:

AD8

Completed by caregiver
Cognitive Change: Treatable Components

![Graph showing cognitive change over months for different conditions.](image-url)
Primary Care Support & Training

Finger Lakes Geriatric Workforce Enhancement Program


- Meet education and training needs related to Alzheimer’s Disease and related dementia (ADRD) for families, caregivers, direct care workers, and health professionals/trainees
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Reasons to Screen

- Management of comorbid conditions, behaviors, and medications
- Risk-benefit discussion regarding pharmacologic therapy and therapeutic expectations
- Anticipatory guidance and long-term planning
- Access to community services and caregiver support, risk for institutionalization
- Prognostication (End-Life-Care)
- Risk stratification for adverse outcomes:
  - Delirium
  - Morbidity/Mortality
Conclusions

- Dementia incidence/prevalence is the modern health crisis
- Efficient cognitive screening tools exist but application must be targeted based upon risk
- Therapies have modest benefit and carry real risk to patients
- Treatment goals and therapeutic expectations need to be discussed
- Caregiver support, anticipatory guidance, and therapeutic relationship is key