Dementia: Screening, Diagnosis, and Recommendations

Linda M Ercoli, PhD
UCLA Semel Institute
Outline

• Cognition in Aging
• Dementia
• Screening for Dementia
• Recommendations
Normal Aging Changes

• Speed of information processing slows
• Word finding difficulties
• Slower to learn and retrieve
• Executive control is less efficient
  – Switching attention (multitasking)
  – Monitoring for errors
  – Organizing one’s thoughts
Mild Neurocognitive Disorder (aka Mild Cognitive Impairment)

- Transitional stage between aging and AD
- Milder degree of cognitive impairment than in Major ND
  - Detectable on cognitive tests
- Preservation of or minimal changes in functional abilities
- Increased rate of progression to dementia (15%/year) mostly to Alzheimer’s
- Unstable condition

Major Neurocognitive Disorder (aka Dementia)

- Cognitive impairment that is severe enough to cause significant difficulties with daily functioning (functional impairment)
- Personality change
- Social/occupational functioning problems
- Mood problems and psychosis
- Acquired, underlying brain disorder
Major Neurocognitive Disorder (dementia)

- Alzheimer’s
- Lewy Body
- Vascular
- Parkinson's
- Frontotemporal
- Alcohol
- HIV
- Brain Injury
- Progressive Supranuclear Palsy
- Creutzfeldt-Jakob
- Encephalopathies
- Normal Pressure Hydrocephalus
- Reversible Types of Dementias
Dementia:
5.8 million Americans

Alzheimer’s disease (AD) is most common--55% of all dementias
Dementia Symptom Continuum

Time

Cognitive Ability
Functional Ability
Behavioral Problems
Caregiver Time

Mild Moderate Severe
Classic or Typical AD in the Early Stages

- Gradual Onset & Slow Decline Course
  - Early Cognitive changes
    - Typically memory/amnestic syndrome is earliest cognitive symptom
    - Executive problems (multi-tasking, problem solving)
    - Language problems (naming, fluency)

- Psychiatric sx
  - possible late life depression, anxiety
  - Suspiciousness, delusions, hallucinations
  - Agitation

- Motor typically normal in Late Onset AD
- Usually socially appropriate early on
- Typically drastic personality change is not an early sign
Warning Signs of Dementia

• What families report
• What you may observe
• What tests may show
Cognitive Signs of AD and Other Dementias

• Memory loss that disrupts daily life -- early sx of AD
  – Forget appointments, medications, misplace objects often; repeat self, forgets to pay bills, can’t remember what they read

• Executive dysfunction
  – Sequencing, multi-tasking and problem solving deficits
  – Impulsivity

• Visuospatial: Gets lost while driving to a familiar location

• Disoriented: Lose track of dates, seasons, time

• Agnosia: Problems recognizing objects and people

• Anomia: Calling things by the wrong name
Warning Signs of Dementia

• Poor judgment, lack of awareness of problems.
  – Giving $ to telemarketers, lack of awareness of limitations (dangerous driving, denial of memory problems)
• Withdrawal from work or social activities.
• Pays less attention to grooming and personal hygiene.
• Psychiatric: Changes in mood and personality.
  – Irritable, quick to anger
  – Hallucinations, delusions
  – Depressed, anxious,
  – Inappropriate
  – Amotivated, apathetic

Alzheimer’s Association
Non-Cognitive Warning Signs of Dementias

• Late onset depression
  – Alzheimer’s or Vascular based dementia, Lewy Body

• Motor and Gait Disturbances
  – Usually found in Parkinson’s plus dementias, some FTLDs

• Other
  – Often seen in Lewy body, Parkinson's plus syndromes
  – Attention lapses
  – REM Sleep disorder (acting out dreams)
  – Autonomic disturbance
  – Visual Hallucinations
Screening for Cognitive Difficulties

MOCA
MINI-COG
Goal of Cognitive Screening

• Identify individuals in need of further work-up
• Identify individuals in need of intervention or help
• Goal is not to diagnose!
Diversity Impacts Cognitive Test Performance

- Age
- Gender
- Education, literacy
- Race, ethnicity
- Culture and acculturation
- Language fluency and bilingualism
- Disability status
- Socioeconomic status
- Exposure to or attitudes towards testing
  - History of discrimination
Assessing for Disparities That Can Impact Testing

• Ask questions about education
  – How much, when, where
  – GED vs Diploma
  – Disruptions, special education, learning disabilities
  – Quality of education
• Ask about native language and language usage now
• Is there poverty
• Is/was there discrimination, segregation
What is an Ideal Screening Tool?

- Brief 1 – 10 minutes
- Easy to administer
- Acceptable to patients
- Minimally affected by sex, education, language, culture
- Have high sensitivity and specificity
- Should directly test several areas of cognition
  - Memory
  - Executive function
  - Attention

Lorentz et al., 2002, Can J Psychiatry; vol 47; Stuss et al., 1996; Arch Neurol, 53.
Sensitivity, Specificity

- **Sensitivity:**
  If a person has a disease, how often will the test indicate disease is present?
  - A “good” score correctly identifies someone with good cognition.

- **Specificity:**
  If a person does not have the disease how often will the test indicate no disease present?
  - A “poor” score correctly identifies someone with cognitive problems.
False Negatives and False Positives

- Falsely identifying cognitive impairment when there is none can be due to:
  - Low education, learning disability
  - Cultural biases, ESL, lack of rapport
  - Hearing and vision problems
  - Mood problems
  - Day of testing factors (lack of sleep; feeling ill, hunger etc)

- Missing cognitive impairment can be due to:
  - High education (test not difficult enough)
  - Test does not tap into the problem area of the client
Montreal Cognitive Assessment (MoCA) Test

- Valid for detecting mild cognitive impairment and dementia
- Reliable
- Short (10 min)
- Acceptable to most clients
- Available in multiple languages
- Assesses multiple areas of cognition—better scope than other screening tests (e.g. MMSE)
- Identifies both MCI and dementia.

Nasreddine et al., 2005
• Orientation
• Cognitive Set Shifting
• Visuospatial
• Attention and vigilance
• Reasoning
• Language
• Memory

• Available in multiple languages

• www.mocatest.org
MoCA Cut-Offs vs Norms

• Use cut-off to flag people as mci/dementia vs normal

• Use norms to identify the percentile where patient falls compared to same-age/education peers
  – Advantage: Reduces misclassification compared to using cut-off
  – Score falling below 16th%ile is indication of MCI
  – Below 3rd %ile = borderline to sever cognitive impairment
Which Cut-Off Do We Use?

- Original MoCA cut-off of 25/26 may be too stringent (13% false positive diagnosis of MCI) in lower education groups.
- Use 23/24 in low education < 12 years population
- Dementia/MCI vs normal: is 19/20
- Consider using normative data instead.

(Luis et al, 2009 meta-analysis)
Other Less Stringent Cut-Offs for MCI vs Normal

- 24/25 (Damian et al., 2011; Ciesielska, 2015; meta-analysis of over 9000 people)
- 23/24 (Luis et al., 2009 meta-analysis)
- 22/23 (Rossetti et al., 2011) Multi Ethnic Norms
Multiethnic Norms
Rosetti et al., 2011

- Conducted as part of the Dallas Heart Study
  - Longitudinal, population based, multiethnic study of factors contributing to progression from normal health to cardiovascular disease risk.
- Ethnically diverse, 50% Af-Am
- Broad education range
- Excluded people with cognitive complaints
Multiethnic Norms
Rossetti et al., 2011

- Conducted as part of the Dallas Heart Study
- Ethnically diverse, 50% Af-Am, 33% White, 11% Hispanic, 2% “Other”.
- Over 2,600 participants
- All subjects able to speak English
- Broad education range
- Excluded people with cognitive complaints
<table>
<thead>
<tr>
<th>Age group, y</th>
<th>Years of education</th>
<th>Total by age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;12</td>
<td>12</td>
</tr>
<tr>
<td>50-60</td>
<td>No.</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>55-65</td>
<td>62</td>
<td>19.94 (4.34)</td>
</tr>
<tr>
<td>60-70</td>
<td>60</td>
<td>19.60 (4.14)</td>
</tr>
<tr>
<td>65-75</td>
<td>57</td>
<td>19.30 (3.79)</td>
</tr>
<tr>
<td>70-80</td>
<td>38</td>
<td>18.37 (3.87)</td>
</tr>
<tr>
<td>Total by education</td>
<td>230</td>
<td>20.55 (4.04)</td>
</tr>
</tbody>
</table>

Rosetti et al., 2011
Dementia on the MoCA

- Is functional impairment present
- Could language, culture, low education or sensory problems affect score?
- Score
  - 18 or less in English speakers with 12 years of education
  - 17 or less in non-native English speakers or patients with less than 12 years education
Mini-Cog

• The Mini-Cog consists of a three item recall and a clock drawing test.
• A Functional Activities Questionnaire is used in combination with the Mini-Cog.
  – Patient is asked to repeat three unrelated words, such as penny, apple, table.
  – Draw a clock showing a “ten minutes after 11” as the specific time. Instructions: Draw the face of a clock
  – The patient is then asked to recall the three words.
  – after one minute, or after the Clock Drawing
Mini-Cog Scoring

• Recall must be perfect to receive 1 pt
• Clock draw: closed circle, all numbers in correct position, hands in correct position (3 pts).
• Interpretation:
  – A score of less than 4 indicates the need for further evaluation, (MoCA, MMSE)
What’s Next When Patient Has Cognitive Difficulties on Screening?

• MCI—refer for neuropsychological testing for more information on cognitive capabilities
• Dementia and MCI: Refer for Work-up
The Work-Up

• History and physical
  – Symptoms
  – Onset and course
• Lab tests and MRI/CT brain scans to rule out treatable causes of dementia
• Neuropsychological testing (MCI)
• As needed:
  – Other brain scans, tests, EEG
  – Genetic testing ordered variably
Work-up

• Neuropsychological testing
  – Memory
  – Attention
  – Reasoning
  – Language
  – Visuospatial
  – Motor/Psychomotor

• Compare to normative groups
• Look for patterns of strengths and weaknesses
Practical Recommendations

• Involve family as much as possible
• Write instructions out for the client
• Use visuals/diagrams
• Patient uses a notebook
• Automatic debit and deposit
• Pill organizers
• Phone call reminders, Alarm clocks
Referrals/Recommendations

- Alzheimer’s Association (Greater LA vs National)
  - Education
  - Caregiver resources, stress
  - Support group for caregivers (also see local organizations/hospitals)
  - Advanced directives

- Culturally appropriate referrals
  - E.g. Alzheimer's LA has Spanish, Chinese, Japanese language information
  - International Alzheimer’s Association
Behavioral Problems in Dementia

- Common
- Most every patient with dementia will demonstrate some form of behavioral disturbance during the course of illness
- Behavioral disturbances result in
  - Increased caregiver burden
  - Poorer quality of care for patient
  - Premature placement
Useful General Techniques

- Prompting
- Reassurance
- Distracting/Redirecting
- Exercise
- Activity, keeping busy, feeling fulfilled
Videos........
Thank You