Overview of Geriatric Neuropsychological Assessment

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Agenda

- Contexts and purposes of geriatric neuropsychological assessment
- Issues associated with assessment of older adults
- Domains assessed

Major Purposes of Geriatric Neuropsychological Assessment

- Dementia Evaluations / Diagnosis
- Evaluation of Functional Status and Competency
- Treatment Planning
- Outcome Monitoring
The Number of Older Americans is Growing

What do we know about today’s older Americans?

- Older adults are 12% of our population
  - 26% of physician office visits
  - 35% of all hospital stays
  - 34% of all prescriptions
  - 38% of all emergency medical service responses
  - 70% of home health services
  - 90% of all nursing home use
- Over 60% living in the community receive LTC services (e.g., personal care, household chores)
- Have multiple chronic conditions and experience more mental health conditions
- 50% of 85+ have ADL/IADL disability

NORMAL AGING

- No consistent, progressive deviations on testing of memory
- Some decline in processing and recall of new information
- Reminders work—visual tips, notes
- Absence of significant effects on ADLs or IADLs due to cognition
**Recognition of Cognitive Impairments - Importance**

- Increased risk for accidents, delirium, medical nonadherence, functional decline, falls, disability, and caregiver stress
- 4.9 million people >65 years old have AD currently
- Only 19% of people with AD have a diagnosis in their medical record.
- Studies show that only 25 to 40% of patients with moderate impairment are recognized in Primary Care Clinics
- Early and differential diagnosis is critical
- Effective treatments of depression or anxiety can improve cognitive functioning

**Functional Consequences of Cognitive Impairment**

- Forgetting
  - Things already learned, Appointments, Self-care (including medication)
- Getting Lost
- Following Commands/Instructions
- Mood
  - Depression, Anxiety
- Unpleasant Interpersonal Behavior
  - Anger, Paranoia, Inappropriate Sexual Remarks/Actions
- Capacity Limitations
  - Decision-Making: Financial, Medical
- Communication Deficits
  - Receptive, Expressive

**Cognitive Impairment**

- Dementia - prototypical
- Two most common forms:
  - Vascular dementia (VaD)
  - Dementia of the Alzheimer’s type (AD)
- Differ in initial cognitive changes
- Mild Cognitive Impairment (MCI)
Mild Cognitive Impairment

- Patients who are memory impaired but are otherwise functioning well and do not meet clinical criteria for dementia are classified as having MCI.
- Symptoms include:
  - Memory complaint, preferably with corroboration
  - Objective memory impairment
  - Normal general cognitive function
  - Intact activities of daily living
  - Not demented
- Patients with MCI should be recognized and monitored for cognitive and functional decline due to their increased risk for subsequent dementia.

Prevalence of Dementia Doubles Every 5 Years Beginning at 60

What is dementia? What does it “look” like?

Memory loss or amnesia, together with decline in these other cognitive functions:
- Use of language, or aphasia
- Visual-spatial function, or perceptual confusion
- Recognition, or agnosia
- Motor coordination, or apraxia
- Performing sequential tasks, or executive dysfunction
DELIRIUM vs. DEMENTIA

- Delirium and dementia often occur together in older hospitalized patients; the distinguishing signs of delirium are:
  - Acute onset
  - Cognitive fluctuations over hours or days
  - Impaired consciousness and attention
  - Altered sleep cycles

Dementia vs. Depression

Dementia
- Widespread memory dysfunction
- Recall and recognition memory is impaired
- Intrusion errors common in memory tasks
- Mood and behavior fluctuate
- Not worried about cognitive loss, may try to conceal cog. problems, anosognosia.

Depression
- Memory dysfunction more focal (visual memory is poor)
- Recognition memory is intact
- Omission errors common in memory task, not as many intrusions
- Mood consistently poor
- Frequent complaining, high level of distress.
- Very distressed about cognitive loss

Neuropsychological assessment as part of dementia evaluation

- Detection and tracking of dementia
- Required for diagnosis of AD using NINCDS-ADRDA criteria
- Included as an evaluation component for the diagnosis of dementia and mild cognitive impairment (MCI) practice parameters for the American Academy of Neurology.
- Pharmacologic management of dementia
- Predicting future cognitive change
- Nursing home residents with questionable or incorrect diagnosis
- Evaluation of risk of complex outcomes or behaviors frequently associated with dementia
**DSM-IV Definition of Dementia**

Dementia is a clinical diagnosis based on “symptoms”

*Memory impairment & at least 1 or more of the following cognitive disturbances:

A) **Aphasia** (language disturbance)

B) **Agnosia** (failure to recognize or identify objects)

C) **Apraxia** (inability to perform skilled movements)

D) Executive dyscontrol (difficulty, planning, organizing, sequencing, abstracting etc.)

E) Symptoms must cause significant impairment in social/occupational functioning and represent a decline from premorbid (previous functioning).

F) May not occur during an episode of delirium

* Differs from ICD-9/10 definition which does not necessitate memory impairment to meet criteria

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**Alzheimer’s Disease (AD)**

- AD is the most prevalent progressive neurodegenerative disease.
- A person with AD lives an average of eight years from diagnosis and could live as many as 20 years.
- By the year 2000, there were about 4.5 million in the U.S. population with AD, with one in 10 persons over the age of 65, and nearly half of those over 85 having AD. By 2050, the number is projected to increase to 13.2 million.

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**DSM-IV DIAGNOSTIC CRITERIA FOR AD**

- Development of cognitive deficits manifested by:
  - Impaired memory and
  - Aphasia, apraxia, agnosia, disturbed executive function

- Significantly impaired social, occupational function

- Gradual onset, continuing decline

- Not due to other Central Nervous System disorders or other physical conditions

- Not due to an Axis I disorder
**DSM-IV Diagnostic Criteria for Vascular Dementia**

- Development of cognitive deficits manifested by:
  - Impaired memory and
  - Aphasia, apraxia, agnosia, disturbed executive function
- Significantly impaired social, occupational function
- Focal neurologic symptoms & signs or evidence of cerebrovascular disease
- Deficits occur in absence of delirium

**Other Major Types of Dementia**

- Dementia with Lewy Bodies
- Fronto-Temporal Dementia

**Other Causes of Dementia**

- Infectious
  - Syphilis
  - Creutzfeldt-Jakob
  - HIV (AIDS)
- Neurologic:
  - Progressive Supranuclear Palsy
  - Normal Pressure Hydrocephalus
  - Pick's Disease
  - Huntington's Chorea
  - CNS mass lesions
- Nutritional/Metabolic
  - Wernicke's, B12, thiamine, niacin, hypothyroidism, Wilson's, Korsakoff's
Estimation of Functional Status and Competency

- Address how cognitive impairments might affect a patient’s ability to function in his or her daily life.
- Individual’s competency to make medical and financial decisions.

Functional Assessment

Fundamental Question: What is their level of independence?

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<th>Instrumental Tasks (IADL)</th>
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<td>Job Performance</td>
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Factors that Influence Performance

- Poor vision or hearing
- Impaired gross- or fine-motor skills
- Intellectual disability
- Severely impaired language functioning
- Severely impaired attention
- Significant Impulsivity
- Poor effort
- Lack of cooperation
- Fatigue
- Severely slowed psychomotor speed
- Psychological impairments
Domains of Comprehensive Geriatric Assessment

- Medical
- Functional (ADL & IADL)
- Mobility, Gait, Balance
- Cognitive
  - Memory
  - Language
  - Praxis
  - Motor Speed / Psychomotor Processing
  - Attention
  - Executive Functioning
- Behavior
- Affective
- Social Support
- Environmental
- Economic Factors
- Quality of life
- Nutrition

Executive Function

- Multi-factorial set of cognitive abilities required to plan and carry out complex, goal-oriented behavior:
  - learning new information, retrieval of long-term memory
  - prospective memory, goal planning
  - task organization and strategy formation
  - attention, cognitive flexibility, working memory
  - temporal sequencing
  - abstracting, novel problem solving
  - motor programming
  - inhibiting over-learned responses
  - alternating behavioral patterns in response to environmental feedback, self-regulation/self-monitoring
  - mood management

Treatment Planning

- Identification of specific strengths and weaknesses
- Identification of post-surgical cognitive or psychological concerns
- Pre-surgical evaluation of candidates for surgical treatment of Parkinson’s disease.
- In rehab settings, as a predictor of post-surgical complications, as well as treatment outcome.
- Tracking change over time
**Outcome Monitoring**

- Monitoring of critical clinical or research outcomes
- Outcome measure for pharmacologic intervention studies

**Practical considerations in the assessment of older adults**

- Medication Use
- Comorbid Chronic Health Conditions
- Physical, Sensory, and Cognitive Limitations
- Social Supports
- Availability of Normative Data for Older Adults

**Clinical Considerations in assessing the older adult**

- Encourage maximal level of performance
- Establish rapport
- Use of appropriate corrective devices
- Environmental concerns (lighting, ventilation, temperature, free from distractions)
- Physical and sensory limitations
- Stimulus materials
- Literacy
**Contextual Factors**

- Anxiety and reluctance about the interview and testing is common.
- 80% of elderly have at least one chronic medical condition...fatigue is common
- This combination of factors frequently leads to an underestimation of actual abilities.

**Process Factors**

- It can be helpful to make some introductory conversation, talk about everyday things, maybe share a bit about yourself.
- Slow the pace...take more time during the interview.
- Testing for more than one hour is not advisable.
- Ask if they would like family present.
- Be aware of cultural factors.

**More Process Factors**

- It is also very helpful to take time to discuss what a neuropsychologist does with particular emphasis on providing information that will help them.
- More time taken to build rapport yields more accurate test results.
- Before testing...check for sensory deficits (40% difficulty hearing and 90% require glasses).
- Check medications...always carry a geriatric drug guide.
Measures for Assessing Neuropsychological functioning in older adults

- Intellectual Functioning Measures
- Memory Assessment Measures
- Measures of Executive Functioning
- Brief Measures of Mood

Intellectual Functioning Measures

Wechsler Adult Intelligence Scale (WAIS-IV)
  - Norms up to age 90 years, 11 months

Kaufman Adolescent and Adult Intelligence Test (KAIT)
  - Norms up to age 94

Memory Assessment Measures

Wechsler Memory Scale-IV (WMS-IV)
  - Older Adult Battery for 65 – 90 years of age

California Verbal Learning Test II (CVLT-II)
  - 9-item dementia version
Advanced Clinical Solutions for the WAIS-IV and WMS-IV

- Norms to 90 years, 11 months
- Enhances clinical utility and expands the construct coverage of WAIS-IV and WMS-IV.
- Links WAIS-IV, WMS-IV, executive function, social cognition, and daily living.

Measures of Executive Functioning

Delis-Kaplan Executive Functioning System (D-KEFS)
- Norms to age 89

Behavioral Assessment of the Dysexecutive Syndrome (BADS)
- Norms to age 87

Brief Measures of Mood

Beck Depression Inventory – II (BDI-II)

Beck Anxiety Inventory (BAI)