Dementia Evaluation and Treatment

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modified by

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Dementia Evaluation

• Assessment
• Cognitive Screening Tests
• Etiologies of Dementia
• Treatment / Referral

Why do we care about dementia?

• “Graying” population
  – by 2030, there may be 70 million elderly in the United States (Currently around 35 million)
• Current prevalence rates of dementia
  – 6-8% if older than 65
  – 30% if older than 80

Terminology

• Dementia
  – an acquired syndrome consisting of a decline in memory and other cognitive functions

Diagnosis of Dementia

• Memory Impairment AND one of the following:
  - Aphasia, Apraxia, Agnosia, or impaired Executive Functioning
• Deficits cause significant impairment in social or occupational functioning

Aphasia

• Characterized initially by a fluent aphasia
  – Able to initiate and maintain a conversation
  – Impaired comprehension
  – Intact grammar and syntax however the speech is vague with paraphasias, circumlocutions, tangential and often using nonspecific phrases (“the thing”)
• Later language can be severely impaired with mutism, echolalia.
Apraxia
• Inability to carry out motor activities despite intact motor function
  – Contributes to loss of ADLs

Agnosia
• The inability to recognize or identify objects despite intact sensory function
  – Typically occurs later in the course of illness
  – Can be visual or tactile

Impaired Executive Function
• Difficulty with planning, initiating, sequencing, monitoring or stopping complex behaviors.
  – Occurs early to midcourse
  – Contributes to loss of instrumental activities of ADLs such as shopping, meal preparation, driving and managing finances.

Dementia subtypes
• Early onset: before the age of 60
  – Less than 5% of all cases of AD
  – Strong genetic link
  – Tends to progress more rapidly
• Late onset: after age 60
  – Represents the majority of cases

Features Associated with Dementia
• Agitation
• Aggression
• Sleep disturbances
• Apathy (can be misdiagnosed as depression)
• Depression or anxiety
• Personality changes
• Behavioral disinhibition
• Impaired insight
• Hallucinations (visual more common than auditory)
• Delusions (often paranoid or persecutory)

Steps to take in Dementia Evaluation
• History
• Physical and Neurological Exam
• Cognitive Screening Test
• Rule out Reversible Causes
• Neuroimaging
• Consider the Etiology
• Treatment or Referral
History Taking

- Patient will “forget” their memory problems too
  - Get history from caregiver or spouse, if possible.
  - Memory impairment may be evidenced by repetitive questioning, list writing, lost objects, etc.

Instrumental Activities of Daily Living (IADL’s)

- Telephone
- Travel
- Shopping
- Meals
- Housework
- Medicine
- Money

Activities of Daily Living

- Bathing
- Dressing
- Grooming
- Toileting
- Continence
- Transferring

Importance of Cognitive Screening

- Establish a baseline level of functioning
- Allows for objective documentation of cognition
- Cognitive Impairment is often not documented
  - Such patients are not evaluated for potentially reversible causes
  - They also do not receive treatment

Screening Tests

- Mini-Mental State Exam (MMSE)
- Clock Drawing Test (CDT)
- Mini-Cog
- Time and Change
- 7-Minute Screen
- Montreal Cognitive Assessment (MoCA)
- SLUMS
Screening Tests
Mini-Mental Status Exam
• Orientation (10 points)
• Registration (3 points)
• Attention and Calculation (5 points)
• Recall (3 points)
• Language (8 points)
• Visuospatial (1 point)
• Total=30, if less than 25, consider dementia.

Normative Data on MMSE

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Normative scores vary with age and education level!

MMSE
Pros and Cons
• Pros
  – Widely used and therefore can track cognition over time and between clinicians
  – 5-10 minutes.
• Cons
  – False positives: those with little education.
  – False negatives: those with high premorbid intellectual functioning.
  – Psychologically stressful – makes people angry!

Clock Drawing Test (CDT)
• “Draw a large circle on the (blank) page.”
• “Put numbers on the circle.”
• “Place hands to show 10 past 11.”
  – Tests planning, visuospatial abilities, but not memory
  – Less stressful, less culture-bound

Clock Drawing Test--abnormal

Mini-Cog
• Clock-Drawing + three-item memory test
  – More sensitive than CDT
  – Same advantages as CDT
  – Not as commonly used as MMSE, but FAST
  – Involves visuospatial, executive and planning, and memory functions
• “Positive” = 2 word recall and/or abnormal clock
History= Memory + ADL’s
Cognitive Screening Tests= MMSE, Clock Drawing
Next--rule out “reversible” causes

Potentially Reversible Dementias
• Drug Toxicity
• Metabolic Disturbance
• Normal Pressure Hydrocephalus
• Mass Lesion (Tumor, Chronic Subdural)
• Infectious Process (Meningitis, Syphilis)
• Collagen-Vascular Disease (SLE, Sarcoid)
• Endocrine Disorder (Thyroid, Parathyroid)
• Nutritional Disease (B12, thiamine, folate)
• Other (COPD, CHF, Liver Dz, Apnea…)

Potentially “Reversible” Causes
• Fewer than 13% are reversible
• Very few do in fact reverse
  – Treatment does not mean they return to “normal”
  – “Treatable” a more appropriate term, but usually not “curable”

Labwork
• Electrolytes
• CBC
• Liver Enzymes
• TSH
• B12 Level
• Syphilis?
• Others only if clinical suspicion high

Neuroimaging
• Most Treatment Guidelines call for brain scan
  – CT usually adequate
  – MRI if Vascular Dementia suspected
  – “Small areas of white matter ischemic changes”--a common, seen in normals
  – Functional Imaging--not in initial workup

Establish Diagnosis
• Consider the cause because
  – Treatments exist
  – Responses to treatments vary
  – Prognoses vary
  – Allows clinician to provide family with more meaningful information regarding the future
**Dementia Syndromes**

**Alzheimer’s Disease**
- Insidious onset and gradual progression.
- Presentation usually related to primary deficits in recent memory.
- Incidence age-related: 8% per year by 85.
- 1/2-2/3 of the time, the cause of dementia is AD.
- Ultimate diagnosis based on pathology of plaques and tangles.

**Senile Plaques:** neuritic processes around an amyloid core.

**Neurofibrillary Tangles:** bundles of filaments inside the neuron.

**Acetylcholine in AD**
- Biochemically characterized by a deficiency of acetylcholine.
- Cerebral cortex, amygdala, hippocampus all affected.
- Basal nucleus of Meynert (basal forebrain) depleted of acetylcholine-containing neurons that project elsewhere.

**Genetics of AD**
- In minority of cases there is an autosomal dominant inheritance linked to chromosome 1, 14, or 21. This is associated with early onset (<60 years of age).
- The presence of an allele E4 increases risk, especially if homozygous.
- AD is probably a common manifestation of multiple underlying disorders.

**Course of AD**
- Insidious onset and progressive course with typical loss of 3 points on MMSE each year and death occurring 8-12 years after diagnosis.
### Course of AD--Mild

- MMSE 20-24
- Usually the first 2-3 years after diagnosis
- Primarily memory and visual-spatial deficits
- Mild difficulty with executive functioning

### Course of AD--Moderate

- MMSE 11-20
- 3-6 years following diagnosis
- Aphasia and apraxia become more pronounced
- Loss of IADLS and increased assistance with ADLs
- Beginning to exhibit some neuropsych symptoms particularly paranoia

### AD course--Severe

- Usually 6-10 years following diagnosis
- Severe language disturbances: mutism, echolalia, repetitive vocalizations
- Pronounced neuropsych manifestations including agitation, aggression
- Very late in the course can see muscle rigidity, gait disturbances, incontinence, dysphagia

### Dementia Syndromes

#### Vascular Dementia

- Second most common form of dementia after AD
- Most common type of dementia including subtypes is AD + vascular
- One or more strokes, two or more cognitive functions affected.
- Aka “Binswanger’s Disease,” “lacunar state,” or “multi-infarct dementia.”

#### Vascular Dementia

- Should be reserved for patients with clear evidence of stroke on imaging or physical examination.
  - 10-40% of all dementia cases
  - 10-15% of AD cases are “mixed”
  - Treatment focused on risk factors
    - smoking
    - atrial fibrillation
    - diabetes
    - hypertension

### Dementia Syndromes

#### Dementia with Lewy Bodies

- High Incidence: 7-26%
- Memory Impairment may come AFTER
- Visual Hallucinations, delirium, parkinsonism
- Sensitive to neuroleptics
- Decline faster than in AD
Cortical Lewy Bodies

Dementia Syndromes
Frontotemporal

- Pick’s Disease is type of frontotemporal dementia.
  - Personality changes, disinhibition, executive dysfunction
  - Memory impairment
  - FT atrophy on brain imaging. Generally asymmetric

Pick’s Disease aka “Walnut Brain”

Dementia Syndromes
Frontotemporal (Pick’s)

- “Presenile” in onset: 40-60
- More progressive and rapidly deteriorating than AD
- Final diagnosis also autopsy-based

Treatment--Behavioral

- Should actually be tried first, before medications.
  - Generally consist of reassurance, distraction, redirection, structure
  - Don't argue: it makes things worse
  - Provide for safe place where dysfuctional behavior can occur without causing harm

Treatment--Behavioral

- Refer to Adult Day Care
- Respite/Adult Family Homes
- Caregiver Support Groups
- Psychoeducation
- Depression in caregiver
- SNF before crisis
Treatments-Pharmacologic

• Behavioral problems can warrant most attention secondary to...
  – Agitation
  – Depression
  – Delusions
  – Aggression
• Improvements are modest

Treatments-Pharmacologic

• Antidepressants
• Neuroleptics
• Anticonvulsants
• Benzodiazepines
• Psychostimulants
• Prazosin
• Cognitive Enhancers

Neuroleptics

• No gold standard.
• Side Effect Profile
• Very modest or no improvements compared to placebo
• *BLACK BOX WARNING: 1.6x increased risk of death

Treatments--Pharmacologic

Anticonvulsants

• Agents= Carbamazepine, Divalproex
• Indications= disinhibited (YELLING) behavior in the absence of psychosis or depression
• Therapeutic Drug Levels apply to treatment of seizures
• Starting doses low

Cognitive Enhancers

Acetylcholine Esterase Inhibitor (AchEI)

• FDA approved for Alzheimer’s
  – SE’s: GI upset, nausea, diarrhea, sleep
  – Consider for Lewy Body
  – Expensive!
  – How will you know they’ve been helpful?
    • Another argument for cognitive screening test
    • Document baseline level of functioning

NMDA antagonist

memantine

• Indicated for moderate-to-severe A.D.
• Studies were add-on with an AChEI
• Titrate by 5 mg per week up to 10 bid
• Glutamate
  – overstimulation
    • excitotoxicity
    • neuronal cell death
• Not indicated for but used nonetheless
Vitamin E

• In ONE randomized, controlled study, Vitamin E showed some effectiveness in delaying SNF-placement.
  – Study had 2000 IU/d
  – No longer advised

Prazosin

• Alpha blocker
• Has demonstrated benefit for agitation
• Very few side effects
• Minimal effect on BP at therapeutic doses
• Studied at 1-2mg bid; higher doses are probably safe
• Can be used prn

When to Refer to a Specialist

• Early onset (<60)
• Presentation is atypical
• If severe parkinsonism, focal findings, or abnormal scan
• Behaviors seemingly “untreatable”
• To better document severity, consider neuropsychologist

Conclusions

• Prevalence of dementia will increase.
• Brief screening tools exist.
• Empirically validated treatments exist.
• Consider the etiology.
• Nonpharmacological interventions are also “treatments.”
• Refer if necessary or if presentation atypical.
• ASK THE CAREGIVERS HOW THEY ARE DOING