Understanding Dementia & Delirium

Brenda Jordan, ARNP, BC-PCM
Dartmouth-Hitchcock • Kendal
What causes dementia

- Any dementia is caused by damage that has occurred to the brain.
- The location of the damage will determine manifestation of different symptoms.
- Commonly dementias have memory impairment but this often occurs with other problems such as inattention or disinhibition.
What is Dementia

- Disorder characterized by
  - Impaired memory
  - Impairment of 1 or more of the following cognitive domains:
    - Aphasia – Inability to speak
    - Apraxia – Inability to perform known tasks
    - Agnosia – Inability to recognize objects
    - Executive function – Judgement/social appropriateness
Major types of Dementia

- Alzheimer’s disease
- Vascular dementia
- Dementia with Lewy Bodies
- Parkinson’s disease with dementia
- Frontotemporal dementia
- Reversible dementia
Alzheimer’s disease

- Most common – 60-80% of dementias
- Progressive degenerative neurologic disorder
  - Memory Loss
  - Personality change
  - Global cognitive loss
  - Functional impairment
  - Behavioral problems with paranoia and hallucinations are common
Pathology of Alzheimer’s

- Abnormal processing of an amyloid protein causes
  - Neuritic amyloid plaques
  - Neurofibrillary tangles
Alzheimer’s Disease (DAT)

- Gradual onset & continuing decline
- Impaired ability to learn new information or recall previously learned information
- May also have one of:
  - language disturbance
  - impaired ability to carry out motor tasks
  - failure to identify familiar objects
  - disturbed “executive” functioning
What is Executive Function

- Dependent on intact higher order integrated cortical function
  - Ability to organize & prioritize
  - Ability to initiate action or cease action
  - Ability to maintain attention and not be easily distracted
  - Ability to judge whether acts might be safe or unsafe
  - Ability to have insight
Vascular Dementia (VaD)

- slow or sudden onset
- same memory impairment
- same language & motor problems
- neurologic exam consistent with prior strokes
- radiologic evidence of cerebrovascular disease/infarcts
Vascular & Alzheimer’s

Most common dementias

- Degenerative changes occur in the brain which are not reversible
- Atrophy or shrinking of brain tissue is common to both
- Vascular dementia often defined by “lacunar infarcts” which create gaps or holes in arteries deep in the brain
- Infarcts common in hypertension, diabetes, elevated cholesterol with vascular disease
Presentation of Dementia

- Gradual memory loss, personality changes, language disturbance, and problems caring for themselves
- Often overlooked & attributed to old age
- May or may not be diagnosed by medical professional
- People who actually have dementia don’t worry about their memory loss
Lewy Body Dementia

- Associated with parkinsonism
- 2nd most common neurodegenerative dementia
- Fluctuations in cognitive function
- Persistent, well-formed visual hallucinations
- Motor feature of parkinsonism
Frontotemporal Dementia

- Focal atrophy of the frontal & temporal lobes
- Pick’s disease was first recognized in the group of dementias
- Presentation includes language abnormalities and behavioral disturbances
- Most FTD occurs between age 35-75
- Familial occurrence 20-40% of the time
- Rapidly progressive with survival 8-11 years
Reversible “Dementias”

- Medication-induced – analgesics, anticholinergics, psychotropics, sedative hypnotics, steroids
- Alcohol-related
- Metabolic disorders
- Depression (pseudodementia)
- Normal pressure hydorcephalus
- CNS disorders – neoplasms, chronic subdural hematoma, chronic meninghitis
Dementia Prevention

- Vitamin E antioxidant – no convincing evidence this is helpful
- Diet – high intake of fish & n-3 fatty acids – conflicting evidence so far
- High fruit & vegetable intake – limited data
- High physical & mental activity & social interaction may help maintain but no evidence of prevention.
Dementia Prevention

- Hypertension increases risk of DAT & VD but nothing to support that antihypertensive therapy can prevent either
- Cholinesterase inhibitors – donazepil, no evidence of preventative value
- HRT – conflicting data
- NSAIDs – can be protective but can increase risks of cardiovascular events
- Statins – HMG CoA reductase inhibitors no evidence to support this use
Dementia Treatment

- Cholinesterase Inhibitors – donazepil, galantamine, rivastigmine
  - No clear evidence of slowing of progression of illness or improving cognition

- Disease modifying agents - memantine
  - NMDA receptor antagonist
  - Small reduction in deterioration over 6 months

- Antipsychotics
  - No evidence that these meds have any impact other than sedation on behaviors associated with dementias
Understanding Delirium

- Among the most common mental disorders in medically ill elders
- “Toxic or metabolic encephalopathy”
- Indicator of underlying serious physical illness
  - Medical Emergency
    - Infection
    - MI
    - Drug toxicity
    - Metabolic Toxicity
    - Substance Intoxication or withdrawal
Delirium - Characteristics

- Develops rapidly – hours to days
- Loss of coherent thought
- Disturbance in Attention & consciousness
  - Clouded consciousness with inability to sustain focus or shift attention
- Short-term Memory Impairment
- Disorientation
Delirium - Characteristics

- Perceptual Disturbances
- Fluctuations in mental state over the course of day with periods of lucidity
- History of recent disordered sleep
- Patient frequently fearful, anxious or angry
- Estimates – 37%-72% of those with delirium thought to have dementia
## Comparison of the Clinical Features of Delirium, Dementia, and Depression

<table>
<thead>
<tr>
<th>Feature</th>
<th>Delirium</th>
<th>Dementia</th>
<th>Depression</th>
</tr>
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<tbody>
<tr>
<td>Onset</td>
<td>Acute, often at twilight</td>
<td>Chronic, insidious</td>
<td>Can be acute or Chronic, may coincide with life changes</td>
</tr>
<tr>
<td>Course</td>
<td>Short, diurnal fluctuations in symptoms, worse at night, in the dark and on awakening</td>
<td>Long, no diurnal effects, symptoms progressive relatively stable over time</td>
<td>May have diurnal effects, (worse in the morning) situational fluctuations but less than with acute confusion</td>
</tr>
<tr>
<td>Duration</td>
<td>Hours - days/less than 1 month</td>
<td>Months to years.</td>
<td>At least 2 weeks.</td>
</tr>
<tr>
<td>Mood/Affect</td>
<td>Rapid swings</td>
<td>Depressed or disinterested</td>
<td>Extreme sadness, may have anxiety/irritability</td>
</tr>
<tr>
<td>Alertness</td>
<td>Fluctuates; lethargic or hyper-vigilant.</td>
<td>Generally normal.</td>
<td>Normal, may be reduced</td>
</tr>
</tbody>
</table>

Additional features

- Psychomotor behavioral disturbances
  - Hypoactivity
  - Hyperactivity with increase sympathetic activity
  - Sleep impairment

- Emotional disturbances
  - Fear
  - Depression
  - Euphoria
  - Perplexity
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<td><strong>Attention</strong></td>
<td>Impaired, fluctuates.</td>
<td>Generally normal.</td>
<td>Minimal impairment but poorly motivated</td>
</tr>
<tr>
<td><strong>Orientation</strong></td>
<td>Fluctuates in severity,</td>
<td>May be impaired.</td>
<td>Selective disorientation.</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>Recent and immediate impaired.</td>
<td>Recent and remote impaired, may confabulate to cover-up deficits</td>
<td>Selective or patchy impairment-may complain about impairment</td>
</tr>
<tr>
<td><strong>Thinking</strong></td>
<td>Disorganized, distorted, fragmented, slow or accelerated; slurred, rambling, incoherent speech.</td>
<td>Difficulty with abstraction, thoughts impoverished, judgment impaired, words difficult to find.</td>
<td>Intact but with themes of hopelessness, helplessness, or self-deprecation. May have difficulty concentrating and be slow to speak</td>
</tr>
<tr>
<td>Hallucinations/Delusions</td>
<td>Visual, auditory, tactile hallucinations. Delusions.</td>
<td>May have delusions, usually no hallucinations</td>
<td>May have delusions (often paranoid)</td>
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<td>Activity</td>
<td>Increased or decreased (fluctuate), tremors (pos.)</td>
<td>Normal, may be decreased in later stages</td>
<td>Variable, lethargic or agitation.</td>
</tr>
<tr>
<td>Sleep Wake Cycle</td>
<td>Disturbed, cycle may be reversed.</td>
<td>Fragmented.</td>
<td>Disturbed, often early morning awakening.</td>
</tr>
<tr>
<td>Triggers/Etiology</td>
<td>Associated with physical or medication cause</td>
<td>Alzheimer's, Multi-infarct, Alcoholism, Vitamin deficiencies, CVA, AIDS</td>
<td>Loss, genetic/familial</td>
</tr>
<tr>
<td>Mental Status Testing</td>
<td>Distracted from task</td>
<td>Failings highlighted by family, frequent &quot;near miss&quot; answers, struggles with test, great effort to find an appropriate reply.</td>
<td>Failings highlighted by the patient, frequent &quot;don't know&quot; answers, little effort, frequently gives up, indifferent, does not care or attempt to find answer.</td>
</tr>
<tr>
<td>Reversibility</td>
<td>Potential</td>
<td>Irreversible, often progressive</td>
<td>Potential</td>
</tr>
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4 Mechanisms of Delirium

- Insufficiency of cerebral metabolism with diffuse slowing of EEG
- Central abnormality of central cholinergic and adrenergic metabolism
- Impaired cerebral oxygenation
- Stress reaction with abnormally high circulating levels of corticosteroids
- Combined with effects of normal aging
Medication Induced Delirium

- Polypharmacy & biologic vulnerability for adverse effects make the older person more prone to medication induced delirium
- Prescription & OTC
- Anticholinergic meds long linked to delirium
Suspicion of Delirium?

- Person needs immediate, thorough medical evaluation
- Delirium can often occur in those older adults who already have impairment with dementia
- Sudden onset of a change in cognition maybe the only indicator that this is delirium and not dementia
Treatment of Delirium

- Single most important principle is to diagnose and treat the underlying cause
  - Suspicious meds eliminated
  - Infections treated
  - Electrolyte imbalances corrected
  - Pain managed
  - Limit stimulation
  - Reassure and reorient patient
  - Reassure family that delirium is reversible in most cases