DEMENTIA & ALZHEIMER’S DISEASE

LEARNING OBJECTIVES

• Differentiate dementia & delirium and describe how they may coexist in the same patient
• List and describe the treatable causes of dementia & describe the clinical clues to their diagnosis
• List the signs & symptoms of Alzheimer’s disease
• Describe the management of an Alzheimer’s patient

LESION LOCALIZATION

• Diffuse cerebral dysfunction
  – Frontal: paranoia, personality change, poor insight
  – Temporal: memory
  – Parietal: calculations, visuospatial, apraxia
  – Occipitotemporal & occipitoparietal junction: complex visual hallucinations
• When diffuse cerebral dysfunction is chronic, progressive, and not associated with a change in consciousness, the syndrome is called dementia

LESION LOCALIZATION: DIFFERENT CAUSES OF “CONFUSION”

<table>
<thead>
<tr>
<th>Delirium</th>
<th>Dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>acute to subacute</td>
<td>subacute to chronic</td>
</tr>
<tr>
<td>fluctuating course</td>
<td>not associated with change in level of consciousness</td>
</tr>
<tr>
<td>associated either with agitation or change in level of consciousness</td>
<td>family complains of symptoms more than patients</td>
</tr>
<tr>
<td>patient says &amp; does strange things</td>
<td>patient says strange things but does not do strange things</td>
</tr>
</tbody>
</table>

Aphasia

- language is abnormal, but patient is not confused
- patient says strange things but does not do strange things

Depression

- “Pseudodementia”
- patient complains of symptoms more than do family members
- inattention & distraction lead to memory recording problems

DIFFERENTIAL DIAGNOSIS: DEMENTIA

• Degenerative
  – Alzheimer’s disease
  – Lewy Body disease
  – Frontotemporal dementia (e.g. Pick’s)
• Structural
  – Vascular
  – Mass lesion
  – Hydrocephalus
• Toxic-metabolic
  – B12 deficiency
  – Hypothyroidism
  – Heavy metals
• Infectious
  – Neurosyphilis
  – HIV
  – Creutzfeldt-Jakob disease
• Chronic meningitides
  – Fungal
  – Tuberculous
  – Syphilitic
  – Lyme
  – Sarcoid
  – Lymphomatous
  – Carcinomatous

EVALUATION

• MRI brain
• Neuropsychologic testing
• Serologic testing
  – B12/Folate
  – VDRL/RPR
  – Thyroid function tests
  – CBC, chemistries, liver panel
• If diagnosis is still unclear:
  – Consider EEG if seizures suspected
  – Consider LP if infectious or inflammatory process suspected

FINAL DIAGNOSIS: DEMENTIA DUE TO ALZHEIMER’S DISEASE

• Prevalence is age dependent
  – 1-4% of people 65-70 years of age
  – 22% + of people aged 85-90 years of age
• Histologic features
  – Neurofibrillary tangles
  – Senile (neuritic, amyloid) plaques
**FINAL DIAGNOSIS:**
**DEMENTIA DUE TO ALZHEIMER’S DISEASE**

- **Normal Neuron**
- **Alzheimer’s Neuron**
- Neurofibrillary tangles
- “Senile” plaques (Beta amyloid)

**FINAL DIAGNOSIS:**
**DEMENTIA DUE TO ALZHEIMER’S DISEASE**

- **Hippocampus (medial temporal lobe)** degeneration occurs early:
  - Progressive memory loss first involving recent events is the hallmark of Alzheimer’s disease
  - As disease progresses, remote memory is affected
  - Disorientation to time and place occur first
- **Parietotemporal cortex degeneration** follows:
  - Impaired word finding, calculations, spatial manipulation

**FINAL DIAGNOSIS:**
**DEMENTIA DUE TO ALZHEIMER’S DISEASE**

- **Frontal cortex degeneration** occurs late in the disease:
  - Early in the disease before the frontal lobe is involved, social behavior is preserved
  - Progressively poor judgment, delusions, agitation, inattention, indifference, and lack of initiation may progress to akinetic mutism
  - Akinetic mutism — ↑ passiveness progresses to cessation of movement (akinesia) and speaking (mutism), but patient appears alert

**MANAGEMENT**

- Acetylcholinesterase inhibitors
  - Donepezil (Aricept)
  - Rivastigmine (Exelon)
  - Galantamine (Reminyl)
- NMDA antagonist
  - Memantine (Namenda)
- Follow-up neuropsychologic testing annually
  - follow cognitive decline

**COUNSELING**

- Once the diagnosis of Alzheimer’s disease is made:
  - Sit down at same level as caregiver
  - Look caregiver in the eye
  - Emotional discussion for caregiver; have tissue paper available
  - Use layman’s terms, not medical jargon
- **Prognosis**
  - Disease is progressive and eventually leads to death
  - Address the well being of both patient & caregiver(s)
  - Eventual nursing home placement likely & preferable in most cases
COUNSELING

- As disease progresses, probable symptoms include:
  - Personality changes
  - Partial seizures may occur - treat with AEDs
  - Behavioral changes - aggression, psychosis
    - use low-dose haloperidol (e.g., starting 0.5 mg at bedtime)
    - do not use risperidone (associated with ↑ stroke risk)
    - do not use benzodiazepines (elderly at ↑ risk for falls, sedation, & “paradoxical reaction” to benzodiazepines)
- Safety precautions (24-hour observation needed)
- Discuss DNR status, will, living will, power of attorney
- Social work, Alzheimer’s Association, etc.

THE END

Michael S. Gordon
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