The Neuropsychiatry of Dementia

Bruce H. Price, M.D.

Chief, Department of Neurology, McLean Hospital
Associate, Department of Neurology,
Massachusetts General Hospital
Associate Professor of Neurology,
Harvard Medical School
Professor Alois Alzheimer
June 1864 – December 1915
Founder of the German School of Neuropathology
Frau Auguste D.

Index  Alzheimer Disease Patient
Alzheimer wrote that the patient, Frau Auguste D., who died at age 51, “had as initial prominent presentation jealousy against the husband. Soon, a rapidly progressive weakness of memory became noticeable. She was unable to find herself oriented about her apartment. She moved objects from one place to the other, hid them, at times she believed one intended to murder her and she began to shout loudly…She was completely disoriented as to time and place. Occasionally, she remarked that she did not understand anything any more, that she was at a complete loss. The physician she greeted like a visitor and excused herself that she had not completed her work. Before long she shouted loudly that he wanted to cut her or she sends him away incensed with remarks which indicate that she is concerned about him regarding her female honor. At times, she is delirious, moves her bed around, calls for her husband and daughter, and appears to have auditory hallucinations.”

Early Behavioral Findings in Dementias

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SYMPTOMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCI</td>
<td>Apathy, irritability, depression</td>
</tr>
<tr>
<td>AD</td>
<td>Apathy, depression, agitation</td>
</tr>
<tr>
<td>FTD</td>
<td>Disinhibition, apathy, loss of sympathy/empathy and awareness</td>
</tr>
<tr>
<td>DLB</td>
<td>Delusions, visual hallucinations, fluctuating mental state</td>
</tr>
<tr>
<td>JCD</td>
<td>Variant: depression, anxiety, insomnia, psychosis</td>
</tr>
</tbody>
</table>
“The eye sees only what the mind is prepared to comprehend.”

Henri Bergson
(1859-1941)
“Look, another cloud shaped like a sheep!”
Cortical and Subcortical Structures Implicated in Selective Psychiatric Symptoms

**Depression**
- Orbitofrontal cortex
- Striatum
- Dorsolateral prefrontal cortex
- Anterior cingulate gyrus

**Hallucinations**
- Orbitofrontal cortex
- Striatum
- Thalamus
- Paralimbic/Limbic cortex
- Unimodal association cortex

**Delusions**
- Orbitofrontal cortex
- Striatum
- Thalamus
- Amygdala
Temporal pattern of changes in Alzheimer neocortex.

Progression of Alzheimer’s disease

Accumulating pathology begins in preclinical phase
Peak Frequency of Behavioral Symptoms as Alzheimer Disease Progresses

Ten Warnings Signs of Dementia

- Memory loss; forgetting recently learned information
- Difficulty performing familiar everyday tasks; cannot prepare a meal or participate in a lifelong hobby.
- Problems with language; forgetting simple words.
- Disorientation to time and place; becoming “lost” in a known place.
- Poor or decreased judgment; dressing with disregard for the weather or disregarding the value of money.
- Problems with abstract thinking; forgetting what numbers represent and how to use them.
- Misplacing things; putting household items in unusual places.
- Changes in mood or behavior; rapid mood swings for no clear reason.
- Personality changes; confusion, suspicion, fear, dependence.
- Loss of initiative; passive behavior, lack of involvement.
- Giving large amounts of money to telemarketers.

Subtle Alzheimer Disease-Related Deficits Which May Obscure Early Recognition

- **Intact social graces**
  - and masking behaviors
- **Diminished comportment**
  - Poor self-awareness
  - Denial of illness
  - Confabulation
- **Impaired executive function**
  - Task avoidance/impersistence
  - Procrastination
  - Reduced planning/foresight
- **Diminished motivation**
  - Apathy
  - Hypo-initiation

- **Decreased socialization**
  - Passivity
  - Reduced affection
  - Social withdrawal
- **Impaired prosody**
- **Diminished Facial Recognition**
Neuropsychiatric Symptoms Coincident With Onset of MCI:

TOTAL – 43%
Depression – 20%
Apathy – 15%
Irritability – 15%
Agitation/Aggression – 11%
Anxiety – 10%

Neuropsychiatric Symptoms Coincident With Onset of Dementia:

TOTAL – 75%
Apathy – 36%
Depression – 32%
Agitation/Aggression – 30%
Irritability – 27%
Anxiety – 21%
Delusions – 18%
Disinhibition – 13%

Neuropsychiatric Symptoms Coincident with Onset in 100 Autopsy–Confirmed AD Patients:

TOTAL – 74%
Apathy – 51%
Verbal Aggression – 37%
Hallucinations – 25%
Physical Aggression – 17%
Depressed Mood – 7%

Questions to Ask the Family Regarding Apathy

Does she seem indifferent to what’s going on around her?
Does it seem important to her to succeed in the things she tries to do?
Does she tend to just sit and do nothing?
Does she seem less active?
Is she able to keep busy during the day?
Will she start activities on her own? Then complete them?
Are there things that she is enthusiastic about?
Does she show a full range of emotions?
• Dementia affects decision-making of all types at some time during its course.

• Even pre-dementia and early dementia states have been found to affect decision-making abilities.

• The cost to patient, family, and society of pre-dementia and early dementing illnesses is difficult to fully appreciate. This is highlighted by recent research showing an increased prevalence of co-morbid behavioral symptoms in this population.
Some crucial capacities

- **Ability to perform activities of daily living**
  - Shop
  - Prepare a meal
  - Personal hygiene
    - Bathe, self toilet, grooming
  - Manage finances
    - Pay taxes, bills and rent
  - Drive or use public transportation
Complex decision making capacities which may be affected by MCI or early dementia

The ability to:
- Respond to emergencies
- Pilot or drive transportation vehicles
- Make medical decisions
- Manage complex medical treatments
- Stand trial
- Testify as a witness
- Qualify as a juror
- Handle firearms
- Fulfill social and occupational roles
- Engage in intimate, sexual relations
- Resist undue influence over personal decisions
- Write a will
• Manage one’s medical conditions
  – Attend appointments and take medications appropriately
  – Consent to medical treatment

• Detailed bedside testing of competence to make medical decisions performed in persons with early AD yielded an agreement of only 56% amongst physicians subspecialized in geriatric psychiatry, geriatric medicine and neurology (Marson et al, 1997).
• Dementia and the accompanying behavioral changes will have far reaching effects on U.S. society and financial markets over the next five decades when an estimated $41 trillion will be passed down through estates of the elderly population.
• Family members, legal authorities and health care providers may erroneously conclude that intact judgment is present from adequate performance on tasks of orientation, memory, and calculations.
Adequate data is lacking regarding the effects of early neuropsychiatric changes on domains of functioning such as medical decision making, consenting to medical research studies, engaging in legal contracts, making financial decisions, voting, operating a motor vehicle, and composing a last will and testament.
• Medical and legal frameworks for evaluating and determining competence to perform these life activities vary greatly amongst specific tasks and differ from state to state with few agreed upon medical or legal guidelines.

• No reliable instruments are available to measure susceptibility to undue influence and coercion.

• This results in a wide spectrum of accepted and common medical and legal practices which may yield widely varying outcomes.
Frau Auguste D.

Index  Alzheimer Disease Patient
THANK YOU

FOR YOUR ATTENTION