CHAPTER FOURTEEN

Dementia, Delirium, and Amnestic Disorders

CHAPTER OUTLINE

- Symptoms
- Diagnosis
- Frequency of Delirium and Dementia
- Causes
- Treatment and Management
OVERVIEW

- Dementia: a gradual worsening loss of memory and related cognitive functioning
- Delirium: a confusional state that develops over a short period of time
- Amnestic disorders: memory impairments that are more limited than those seen in dementia or delirium
- Dementia and amnestic disorders are often associated with specific identifiable changes in the brain tissue

OVERVIEW

- Dementia, delirium, and amnestic disorders are listed as cognitive disorders in DSM-IV-TR.
- Cognitive processes
  - Perception and attention
  - Memory
  - Reasoning and decision-making
- Neurologists: physicians who deal with disease of the brain and nervous system
- Neuropsychologists: assess for cognitive impairments

SYMPTOMS

- Delirium
  - Primary symptom: a clouding of consciousness in association with a reduced ability to maintain and shift attention
  - Symptoms of delirium follow a rapid onset – from a few hours to several days
  - Symptoms usually worse at night
  - Sleep/wake cycle is often disturbed
  - Coma may occur if symptoms allowed to progress
### TABLE 14-2 Distinguishing Features of Dementia and Delirium

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>DELIRIUM</th>
<th>DEMENTIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>Sudden</td>
<td>Slow</td>
</tr>
<tr>
<td>Duration</td>
<td>Brief</td>
<td>Long/lifetime</td>
</tr>
<tr>
<td>Course</td>
<td>Fluctuating</td>
<td>Stable, with downward trajectory over time</td>
</tr>
<tr>
<td>Hallucinations</td>
<td>Visual/tactile</td>
<td>Rare/vivid</td>
</tr>
<tr>
<td>Insight</td>
<td>Lucid</td>
<td>Consistently poor</td>
</tr>
<tr>
<td></td>
<td>Disturbed</td>
<td>Less disturbed</td>
</tr>
</tbody>
</table>

### SYMPTOMS

- **Dementia**
  - **Cognitive Symptoms**
    - Earliest signs are often vague
      - Difficulty remembering names of people and familiar objects
    - Late stage
      - Intellectual and motor functions may disappear almost completely

### COGNITIVE SYMPTOMS

<table>
<thead>
<tr>
<th>MEMORY AND LEARNING</th>
<th>VERBAL COMMUNICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory loss is diagnostic hallmark</td>
<td>Aphasia: loss or impairment in language</td>
</tr>
<tr>
<td>Retrograde amnesia</td>
<td>Apraxia: difficulty performing purposeful movements in response to verbal commands</td>
</tr>
<tr>
<td>Anterograde amnesia: inability to learn or remember new information</td>
<td></td>
</tr>
</tbody>
</table>

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### COGNITIVE SYMPTOMS

#### PERCEPTION
- **Agnosia**: perception without meaning
- Can be associated with visual, auditory, or tactile sensation
- Can be specific or more generalized

#### ABSTRACT THINKING
- Bound to concrete interpretations of things that other people say
- Difficulty interpreting words that have more than one meaning

### SYMPTOMS

#### Dementia
- **Cognitive Symptoms**
  - Judgment and Social Behavior
    - The disruption of short-term memory, perceptual skills, and higher level cognitive abilities obviously causes disruptions of judgment.
    - Impulsive and careless behaviors are often the product of the demented person’s poor judgment. Activities such as shopping, driving, and using tools can create serious problems.

#### Assessment of Cognitive Impairment
- Neuropsychological assessment
  - Process that involves administration of psychological tests to indicate whether a person has a brain disorder
  - Designed to measure sensorimotor, perceptual, and speech functions
  - Some tasks require the person to copy single objects or drawings
FIGURE 14-1 Neurological Test Performance drawing 1 by a psychologist, drawing 2 by a patient to reproduce the drawing 1, and drawing 3 was based on the memory of the image by the patient.

SYMPOMS

- Dementia
  - Personality and Emotion
    - Changes and disturbances frequently associated with dementia
    - Hallucinations and delusions are seen in at least 20% of dementia cases; more common during the later stages of the disorder
    - Emotional consequences are varied
      - Apathetic or emotionally flat
      - Exaggerated and unpredictable

- Dementia
  - Motor Behaviors
    - May become agitated, pacing restlessly or wandering away from familiar places
    - Muscular rigidity
    - Dyskinesia
      - Tic, tremors, and jerky movements of the face and limbs called chorea
AMNESTIC DISORDER

- The person exhibits a severe impairment of memory while other higher level cognitive abilities are unaffected.
- **Korsakoff’s syndrome**: alcohol-induced persisting amnestic disorder
  - Alcohol can cause brain damage regardless of the person’s nutritional habits.

AMNESTIC DISORDER

- Diagnosis
  - Brief Historical Perspective
    - Alois Alzheimer (1864–1915)
      - Conducted a microscopic examination of deceased patient’s brain and found neurofibrillary tangles and amyloid plaques

AMNESTIC DISORDER

- Diagnosis
  - Specific Disorders Associated with Dementia
    - Many specific disorders are associated with dementia. They are distinguished primarily on the basis of known neuropathology—specific brain lesions that have been discovered over the past 100 years.
TABLE 14–4 Cognitive Disorders Listed in DSM-IV-TR

<table>
<thead>
<tr>
<th>Delirium</th>
<th>Delirium due to a general medical condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Substance-induced delirium</td>
</tr>
<tr>
<td></td>
<td>Delirium due to multiple etiologies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia of the Alzheimer's type</td>
</tr>
<tr>
<td>Vascular dementia</td>
</tr>
<tr>
<td>Dementia due to other general medical conditions</td>
</tr>
<tr>
<td>HIV disease</td>
</tr>
<tr>
<td>Head trauma</td>
</tr>
<tr>
<td>Parkinson’s disease</td>
</tr>
<tr>
<td>Huntington’s disease</td>
</tr>
<tr>
<td>Pick’s disease</td>
</tr>
<tr>
<td>Creutzfeldt-Jakob disease</td>
</tr>
<tr>
<td>Substance-induced persisting dementia</td>
</tr>
<tr>
<td>Dementia due to multiple etiologies</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Amnestic disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amnestic disorder due to a general medical condition</td>
</tr>
<tr>
<td>Substance-induced persisting amnestic disorder</td>
</tr>
</tbody>
</table>

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AMNESTIC DISORDER

- **Diagnosis**
  - Dementia of the Alzheimer’s Type
    - The speed of onset serves as the main feature to distinguish Alzheimer’s disease from the other types of dementia listed in DSM-IV-TR.
    - Cognitive impairments appear gradually.
    - A definite diagnosis can only be determined by autopsy.
    - Neurofibrillary tangles, amyloid plaques, and beta-amyloid

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FIGURE 14-2 Forms of Brain Tissue Damage Associated with Alzheimer’s Disease
AMNESTIC DISORDER

FRONTOTEMPORAL DEMENTIA (PICK'S DISEASE)

- A rare form of dementia associated with circumscribed atrophy of the frontal and temporal lobes
- Very similar to Alzheimer's disease in terms of both behavioral symptoms and cognitive impairment
- Problems in memory and language impairment

HUNTINGTON'S DISEASE

- Unusual involuntary muscle movements known as chorea
- Relatively subtle at first, muscle contractions become difficult as disease progresses
- Exhibit a variety of personality changes and symptoms of mental disorders

FIGURE 14-3
Areas of the Brain Implicated in Huntington's Disease

AMNESTIC DISORDER

PARKINSON'S DISEASE

- Degeneration of the brain stem
- Loss of dopamine
- Symptoms: tremors, rigidity, postural abnormalities, and reduction in voluntary movements

VASCULAR DEMENTIA

- Affects transportation of oxygen and sugar to the brain
- Stroke and infarct
- Several small strokes occurring over time
AMNESTIC DISORDER

Dementia with Lewy Bodies (DLB)

- Rounded deposits found in nerve cells.
- F.H. Lewy described in 1912.
- Often found in the brain-stem nuclei of Parkinson’s disease.
- DLB: 2nd most common form of dementia.
- Presence of recurrent and detailed visual hallucinations (Borroni et al., 2006).

Why is depression in an elderly person sometimes confused with dementia?

- Depression involves:
  - Lack of interest in, and withdrawal of attention from, the environment.
  - Problems with concentration.
  - Appearing preoccupied.
  - Thinking is labored.
- These symptoms closely resemble symptoms of dementia.
- Experienced clinicians can usually distinguish between depression and dementia by considering the pattern of onset and associated features.

FREQUENCY OF DELIRIUM AND DEMENTIA

- Detailed evidence regarding the prevalence of delirium is not available. It seems to be one of the most frequent symptoms of disease among elderly people.
  - At least 15% of elderly hospitalized medical patients exhibit symptoms of delirium (Grover et al., 2009).
  - Although it can appear in people as young as 40 to 45, the average age of onset is much later.
  - By the year 2030, more than 9 million people in the US will be affected by Alzheimer’s disease.
FREQUENCY OF DELIRIUM AND DEMENTIA

• Prevalence of Dementia
  — Samples in North America and Europe:
    • The prevalence of dementia in people between the ages of 65 and 69 is approximately 1%.
    • Between the ages of 75 and 79, the prevalence rate is approximately 6%.
    • Increases dramatically in older age groups.
  — Almost 40% of people over 90 years of age exhibit symptoms of moderate or severe dementia (Rocca et al., 2010).

FIGURE 14-4 Gender Differences in the Incidence of Alzheimer’s Disease and Vascular Dementia

CAUSES

• Dementia
  — Genetic Factors
    • Disorder runs in families
    • Until recently, no twin studies have been used extensively to study the influence of genetics.
  — Swedish study: concordance rate in monozygotic twins was over 50%, more than double the dizygotic rate.
CAUSES

• Delirium
  – Involves neuropathology and neurochemistry (Goldstein, 2003)
  – Delirium can be caused by many different kinds of medication, including the following:
    • Psychiatric drugs (antidepressants, antipsychotics, and benzodiazepines)
    • Drugs used to treat heart conditions
    • Painkillers
    • Stimulants (including caffeine)

FIGURE 14-5 Genes Associated with Alzheimer’s Disease

CAUSES

NEUROTRANSMITTERS

• Specific mechanisms that are involved have not been identified
• Parkinson’s disease: a degeneration of the dopamine pathway
• Huntington’s disease: deficiencies in Gamma-aminobutyric acid (GABA)

VIRAL INFECTIONS

• Some forms of primary dementia are known to be the products of “slow” viruses— infections that develop over a much more extended period of time than do most viral infections
• Creutzfeldt-Jakob disease
CAUSES

IMMUNE SYSTEM DYSFUNCTION
• The presence of beta-amyloid at the core of amyloid plaques is one important clue to the possible involvement of immune system dysfunction

ENVIRONMENTAL FACTORS
• Some types of dementia, especially Alzheimer’s disease, may be related to environmental factors
• One example is head injury, which can cause a sudden increase of amyloid plaque

How could education help to reduce a person’s risk for dementia?
• Increased “brain work” may lead to a facilitation of neuronal activation, increased cerebral blood flow, and higher levels of glucose and oxygen consumption in the brain.
• All of this may increase the density of synaptic connections in the person’s cortex and reduce risk for later neuronal deterioration.

TREATMENT AND MANAGEMENT
• Accurate diagnosis is paramount with regard to treatment of cognitive disorders.
• The distinction between delirium and dementia is important because many conditions that cause delirium can be treated.
• When the person clearly suffers from a primary type of dementia, such as dementia of the Alzheimer’s type, a return to previous levels of functioning is extremely unlikely.
TREATMENT AND MANAGEMENT

• Medication
  – Acetylcholine (ACh): neurotransmitter that is involved in memory and whose level is reduced in patients with Alzheimer’s disease
  – Donepezil (Aricept): unfortunately, it usually works for only six to nine months and is not able to reverse the relentless progression of the disease

TREATMENT AND MANAGEMENT

• Environmental and Behavioral Management
  – Patients with dementia experience fewer emotional problems and are less likely to become agitated if they follow a structured and predictable daily schedule.
    • It is useful to help the person remain active and interested in everyday events.
    • Preserve familiar routines and surroundings

What is the most difficult problems faced by people caring for a person with dementia?

• Profound loneliness and sadness
• Learning to cope with more tangible stressors, such as the patient’s incontinence, functional deficits, and disruptive behavior
• 80% of the care is provided by family members or spouses
• Relationships among other family members and the psychological adjustment of the principal caregiver are more disturbed by caring for a demented person than by caring for someone who is physically disabled.
• Guilt, frustration, and depression are common reactions among the family members of patients.