DELIRIUM AND DEMENTIA

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OBJECTIVES

• Define the terms minor cognitive disorder, dementia, and delirium

• Understand how to distinguish minor cognitive disorder, dementia, and delirium

• Understand a simple classification of the types of dementia

• Demonstrate the approach to the treatment of dementia and delirium
DEFINITIONS (1 of 2)

• Delirium
  ➢ Acute confusional state
  ➢ Waxing and waning cognition
  ➢ Memory loss almost always
  ➢ Stupor/torpor
  ➢ Psychomotor agitation, 25%
DEFINITIONS (2 of 2)

• Minor cognitive impairment
  ➢ Usually single deficit, memory
  ➢ Risk of dementia but not dementia

• Dementia
  ➢ Chronic confusional state
  ➢ No waxing or waning, chronic progression
  ➢ Little or no stupor/torpor
  ➢ Must have deficiencies in 2 cognitive areas
DEMENTIAS

• Classification schemes
  ➢ Purely cortical vs. subcortical
  ➢ Purely cognitive vs. cognitive + neurological signs
  ➢ Alzheimer’s-type vs. Parkinson’s syndrome +

• Most useful probably is cognitive (or dementia) + neurological signs
MEMORY

• Both long-term and working memory (more the latter) are disrupted with hippocampal disease

• Any bilateral disruption of circuit of Papez (from mammillary bodies through mammillo-thalamic tract to the horns of Ammon) disrupts memory

• Herschel's gyrus and memories of smell, sound, and taste
FIRST, THINK WHAT PART OF THE BRAIN IS INVOLVED (1 of 3)

• Frontal lobe
  ➢ Executive function, ambition, planning, perseverance, obsessions, praxes, modulation of mood, control of bladder

• Right hemisphere
  ➢ Music, math, geometrical space, jokes, time, space, left / right recognition
WHAT PART OF THE BRAIN IS INVOLVED? (2 of 3)

- **Occipital lobe**
  - Vision

- **Left temporal lobe (déjà vu)**
  - Frontal super temporal gyrus — proper names
  - Superior temporal gyrus — common names
  - Around Sylvian fissure — fluent aphasias

- **Left associative**
  - Speech, fluent aphasias, reading, writing
WHAT PART OF THE BRAIN IS INVOLVED? (3 of 3)

• Anterior to motor strips
  ➢ Frontal gaze centers
  ➢ On left, Broca’s area, non-fluent aphasias
COMMON DEMENTIAS (1 of 2)

- Alzheimer’s
- Binswanger’s (periventricular white matter ischemia)
- Frontoparietal atrophy
- Multiple systems atrophy (striatonigral degeneration, Shy-Drager syndrome, olivopontocerebellar atrophy)
COMMON DEMENTIAS (2 of 2)

• Multi-infarct dementia
• Lewy body dementia
• Progressive supranuclear palsy
• Parkinson’s disease
• Corticobasal ganglionic degeneration
• Normal-pressure hydrocephalus
PRACTICAL MATTERS (1 of 3)

• At the first visit it is not always possible to distinguish delirium from dementia
  ➢ Key is history from family, nursing staff, etc.

• First priority is to establish whether a patient is cognitively impaired
  ➢ Sorting out dementia from delirium can come later
PRACTICAL MATTERS (2 of 3)

• Tests: **Mini-Cog** is easiest to learn and effective
  - Can patient recall 3 unrelated items at 3–5 minutes?
    - If recalls all 3, not impaired
    - If recalls none, cognitively impaired
    - If recalls 1 or 2, administer the clock drawing portion of the test
      » If clock drawing normal, not impaired
      » If clock drawing poor, cognitively impaired
PRACTICAL MATTERS (3 of 3)

• **Short Portable Mental Status Questionnaire** — does not need to be done face-to-face, can be done on phone

• **Mini-Mental State Exam** — longer test, more complicated

• **Trails Tests** — More complicated for spatial testing
ALZHEIMER’S

• Probably not a pure disease; often comingled with Binswanger’s

• Mostly memory, hippocampal disease

• No neurological manifestations until late

• Patients presenting with dementia and neurological signs early in the disease do not have Alzheimer’s
BINSWANGER’S

- Usually history of HTN and/or diabetes
- Can present as Parkinson’s +
- Also frontal-lobe disease
- Often history of lacunar infarcts
- Diffuse leukoaraiosis on MRI
- Pathologically small perforant vessels show diffuse lipohyalinosis of intima
FRONTOPARIETAL ATROPHY

- Frontal lobe signs prominent
- MRI shows frontal atrophy
MULTIPLE SYSTEMS ATROPHY (MSA)

- Parkinson’s +
- **Shy-Drager syndrome**: orthostatic hypotension and dysautonomia prominent
- **Olivopontocerebellar atrophy**: profound cerebellar findings
- May find PET scanning most useful
- No response to L-dopa
MULTI-INFARCT DEMENTIA

• Not the same as Binswanger’s

• Setting of sufficient cortical strokes to destroy about 75 mL of cortex

• Patients will have evidence of past cerebrovascular accidents
LEWY BODY DEMENTIA

- Prominent vivid hallucinations
- Mood disorder, usually severe depression
- Waxing and waning cognition
- Parkinson’s +
- Diffuse Lewy body degeneration throughout the brain
PROGRESSIVE SUPRANUCLEAR PALSY

- Parkinson’s + but rare to have tremor
- Axial rigidity rather than extremities
- Paralysis of vertical gaze, usually downward, can be overcome by doll’s eyes
- PET scanning shows diffuse destruction of midline axons
- Can be very hard to distinguish from Parkinson’s
- Profound akinesia of gait, speech, writing often seen
PARKINSON’S DISEASE

• Bradykinesia
• Cogwheel rigidity, usually of extremities
• Mask face
• No arm swing
• Marche à petits pas
• Poor postural maintenance in space
• PET scanning shows few dopamine receptors in nigra and basal ganglia
CORTICOBASAL GANGLIONIC DEGENERATION

• Parkinson’s +

• Profound dementia

• Often arms begin to move on their own (not like Huntington’s)

• MRI may be helpful

• Least common of the common
NORMAL-PRESSURE HYDROCEPHALUS

- Gait *apraxia*
- Urinary incontinence
- Dementia
- Prominent frontal lobe signs
- MRI best screening tool: increased periventricular water
- Responds infrequently to shunting, and only if full triad is present
  - Gait and incontinence usually improve more than cognition
OTHERS TO REMEMBER

• Seizures
• Head trauma
• Medications
• Mitochondrial diseases (Kearns-Sayer)
BEHAVIORAL PROBLEMS WITH DEMENTIA

- Not effectively treated with central nervous system drugs of any type unless the patient is actively hallucinating or aggressive

- Do not respond well to donepezil, memantine, or other such drugs
DELIRIUM

• Most common in patients with dementia

• Triggers — almost anything, from sepsis, to myocardial infarction, pain, drugs, to fecal impaction
  - History — “Mom/Dad is just not like him/herself today”

• Prevention is critical — once present, hospital stays prolonged by 4–6 days, higher mortality
DELIRIUM CAUSES

• The substrate of delirium is dementia

• Delirium can be precipitated by nearly any change in medical status, seizures, UTI, impaction, new home, imperious and numerous medical staff, drugs, etc.

• For this reason, delirium should be viewed as a vital sign, not a diagnosis
  ➢ To treat with drugs is to ignore this fundamental principle
PREVENTING DELIRIUM

• Risks for delirium — severe illness, prior cognitive impairment, >4 medications, poor vision, poor hearing, restraints

• Prevention — few medications, family present, home if possible, calm demeanor, politeness, reduce fever, comfort, smiling
TREATMENT OF DELIRIUM (1 of 2)

• Single-provider approach, calm, politeness (even demented patients often retain social awareness)

• Restraints, security guards, and threatening circumstances increase delirium

• If patient refuses exam, accept the decision, but try again later
TREATMENT OF DELIRIUM (2 of 2)

• No drugs (unless patient is actively hallucinating or physically aggressive toward others)

• There is strong evidence that pharmacotherapy is often unhelpful, leading to paradoxical arousal

• Drugs such as memantine and donepezil are of no use acutely

• Pain is associated with delirium, but so are medications for treatment of pain

• Fundamental approach: treat underlying problems (fever, infection, etc.)
THE BOTTOM LINE

• Dementia/delirium is common

• In ED, delirium is very common

• Never take a history from an elderly patient without first performing a mental status exam

• Drugs are not the first or second line of treatment — look for the cause
CASE 1 (1 of 2)

• Mr. T is a 76-year-old man with worsening urinary frequency and urgency.

• In the urology clinic he was found to have no retention but suspected detrusor instability and is placed on trospium.

• Over the next several days voiding was considerably less, but there was a slow progression of worsening confusion. He could not insert the key into the door lock, was getting lost in his home, and to his wife he seemed dazed and sleepy.
CASE 1 (2 of 2)

• In the ED several things were found:
  ➢ Modest urinary retention 125 mL postvoid residual
  ➢ WBC 25/HPF, 1+ bacteria

• He was admitted to the hospital. MMSE score was 12/30 and neurological exam was nonfocal. His urine grew greater than 100,000 pan-sensitive *E. coli.* Delirium cleared slightly with treatment and he was discharged to home care.

• Seen in clinic 4 days later, he is still confused, and his wife is concerned that he is still very much not his usual self.
CASE 1, QUESTION 1

True or False?

You should obtain a psychiatry consult regarding admission to determine the use of an appropriate psychotropic medicine.
CASE 1, QUESTION 2

True or False?

Oxybutynin should be substituted for the trospium.
CASE 1, QUESTION 3

True or False?

Mr. T’s physician should simply wait for him to improve after the antibiotics because delirium is often slow to clear.
CASE 2 (1 of 2)

• Dr. B, an 85-year-old retired physician, is admitted to the ED.

• His wife is with him and describes slowly worsening behavior, loss of inhibitions, and urinating in his pants at times. He has maintained a good appetite, and she thinks his memory is only slightly worse than a year or two ago.

• He is taking escitalopram and olanzapine given by his personal MD for presumed depression and confusion.

• His vital signs are all within normal limits. He seems to be alert and is relatively calm.
CASE 2 (2 of 2)

- His physical exam shows numerous solar keratoses, clear lungs, a whistling 2/6 systolic ejection murmur at the aortic root, normal abdomen, and no adenopathy.

- A screening neurological exam suggests that his gait is slow, and he occasionally seems a bit unbalanced. Strength and sensation are normal.

- His escitalopram and olanzapine are discontinued with no major effect except that he loses control of his bladder less frequently.

- U/A, CBC, and electrolytes are all normal. Chest x-ray is normal.
True or False?

Dr. B.’s physician should discontinue Dr. B.’s escitalopram and olanzapine.
True or False?

The most likely diagnosis is Alzheimer’s disease.
CASE 2, QUESTION 3

True or False?

An MRI of the brain is an important part of Dr. B’s evaluation.
**ANSWER KEY**

- **Case 1**
  - Question 1: False
  - Question 2: False
  - Question 3: False

- **Case 2**
  - Question 1: True
  - Question 2: False
  - Question 3: True
REFERENCES


• Zeman A. Tales from the temporal lobe. NEJM. 2005;352:119-121.
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