DELIRIUM IN THE ELDERLY

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A 73-year-old woman with a history of HTN, DM, osteoarthritis, chronic low back pain, tremor, hearing loss, and hyperlipidemia presented to the ED 10 days ago complaining of weakness and slurred speech. It began upon awakening on the day of admission and involved left face, arm, and leg weakness and numbness.

An MRI/ MRA of the head and neck showed a subacute right MCA infarct and patent intracranial vessels. The discharge summary states that a full stroke workup on the acute inpatient neurology service was otherwise unremarkable.
The patient suffered a fall 2 days prior to hospital discharge. She sustained no injuries.

Upon admission to your acute rehabilitation facility, her exam is remarkable for left arm weakness 3/5, left leg weakness 4-/5, left facial droop, and dysarthria.

During the interview, you notice she is drowsy and names the incorrect month and season. She scores an 18/30 on the Folstein MMSE, missing several answers because she had significant difficulty focusing on your questions. Vital signs are normal.
CLINICAL GERIATRIC VIGNETTE: DELIRIUM (3 of 4)

• The patient’s daughter is present at the bedside and says that on several occasions in the last few days her mother “had not been herself”—she had rambling speech, appeared to be confused, and asked her the same questions repeatedly. At other times, however, she was “back to normal.”

• The daughter also notes that in the last year her mother had several episodes of “confusion” involving word-finding difficulty and slurred speech. Although the patient had been driving and completing basic errands prior to her admission, her daughter had to start managing her finances several months ago.
Medications:
- Aspirin 81 mg PO daily
- Simvastatin 80 mg PO qhs
- Famotidine 20 mg PO daily
- Propranolol 40 mg PO q12h
- Glipizide 5 mg PO BID
- Hydrochlorothiazide 12.5 mg PO daily
- Oxycodone extended release 10 mg PO q12h
- Multivitamin 1 tablet PO daily
- Docusate 100 mg PO q12h
- Acetaminophen/oxydode 5/325 mg PO q4h PRN pain
- Ambien 5 mg PO qhs PRN sleep
Delirium is an acute confusional state marked by altered consciousness, fluctuating symptoms, and inattention.
EPIDEMIOLOGY (1 of 2)

• Delirium is common
  ➢ Occurs in up to 56% of general hospital admissions

• Delirium is particularly common in the elderly
  ➢ About 20% of hospitalized patients over age 65 develop delirium
  ➢ Occurs in up to 60% of nursing home admissions and other post–acute care admissions
EPIDEMIOLOGY (2 of 2)

• Delirium is a serious condition
  ➢ Increases the risk of mortality
  ➢ 22%–76% mortality rate in hospitalized patients with delirium
  ➢ 35%–40% one-year mortality rate
  ➢ Often indicates the presence of a serious underlying illness
DIAGNOSIS

• Based on clinical evaluation

• No specific test for diagnosis exists

• Delirium is underdiagnosed
  ➢ Lack of clinician education and recognition
  ➢ Fluctuating symptoms can impede diagnosis
  ➢ Symptoms vary between patients
CHARACTERISTIC FEATURES
(1 of 4)

• Acute onset
  ➢ Onset is usually within hours

• Fluctuating course
  ➢ Symptoms can vary widely over the course of the syndrome
CHARACTERISTIC FEATURES
(2 of 4)

• Inattention

• Altered mental status
  ➢ Changes in consciousness

• Altered cognition
  ➢ Disorganized thinking, disorientation

• Perceptual deficits
  ➢ Hallucinations, illusions
CHARACTERISTIC FEATURES
(3 of 4)

• Psychiatric features
  ➢ Alterations in sleep-wake cycle
  ➢ Emotional disturbances
    • Labile mood
    • Anger, paranoia, fear, anxiety
    • Usually intermittent and fluctuating
CHARACTERISTIC FEATURES
(4 of 4)

• Hyperactive delirium
  ➢ Characterized by agitation and restlessness

• Hypoactive delirium
  ➢ Features include lethargy and apathy
• Not entirely understood

• Multifactorial

• Disturbances occur in higher cortical functions and areas
  - Prefrontal cortex, thalamus, basal ganglia
  - EEG shows diffuse slowing, correlating with severity of disease
• Neurotransmitter imbalances
  - Acetylcholine deficiency
  - Dopamine excess
  - Serotonin, norepinephrine also thought to be involved

• Elevated cytokine levels

• HPA axis disturbance
  - Excess cortisol levels
PREDISPOSING FACTORS (1 of 7)

• Age
  ➢ Age 65 or above

• Gender
  ➢ Males are more likely to develop delirium

• Prior history of delirium
PREDISPOSING FACTORS (2 of 7)

- Environmental stimuli can contribute to disturbances in perception and can cause disorientation
  - Multiple nighttime awakenings by hospital staff
  - Noise levels on the wards
  - Lack of exposure to natural circadian cues
  - Interactions with numerous staff members
  - Indwelling catheters
PREDISPOSING FACTORS (3 of 7)

• Sensory disturbances
  ➢ Poor vision
  ➢ Impaired hearing

• Functional performance
  ➢ Immobility predisposes patients
PREDISPOSING FACTORS (4 of 7)

- Specific medications
- Polypharmacy and drug interactions
- Pain
- Sleep deprivation
- Dehydration
- Malnutrition
PREDISPOSING FACTORS (5 of 7)

• Prior level of cognition and comorbidities can predispose patients
  - Dementia
  - Depression
  - Renal failure
  - Hepatic disease
  - Withdrawal from substance abuse
  - Metabolic abnormalities
  - Severe illness with APACHE II score <16
PREDISPOSING FACTORS (6 of 7)

- Comorbidities
- Neurologic disease
  - Stroke
  - Encephalopathy
  - Intracranial hemorrhage
- HIV
- Infection
- Hypoxia
- Anemia
PREDISPOSING FACTORS (7 of 7)

• Medications
  ➢ Narcotics
  ➢ Benzodiazepines
  ➢ Anticholinergics
  ➢ Hypnotics
CONFUSION ASSESSMENT METHOD (1 of 4)

• A clinical tool for use in identifying delirium with excellent sensitivity, specificity, and inter-observer reliability

• When 4 specific features are identified using CAM, concordance with delirium is 88%
CONFUSION ASSESSMENT METHOD (2 of 4)

- Is there evidence of an acute change in mental status from the patient’s baseline?

- Did the patient have difficulty focusing attention during the interview, for example, being easily distractible or having difficulty keeping track of what was being said? If so, did this behavior fluctuate during the interview?

- Was the patient’s thinking disorganized or incoherent?

- Overall, how would you rate the patient’s level of consciousness?
CONFUSION ASSESSMENT METHOD (3 of 4)

- Was the patient disoriented during the interview?
- Did the patient demonstrate any memory problem during the interview?
- Did the patient have any perceptual disturbances?
- Did the patient have any increased motor activity?
- Did the patient have a decreased level of activity?
- Does the patient have sleep-wake cycle disturbances?
CONFUSION ASSESSMENT METHOD (4 of 4)

1. Inattention
2. Acute onset of fluctuating symptoms
3. Altered level of consciousness
4. Disorganized thinking

Must have 1 and 2 plus either 3 or 4
APPROACH TO DELIRIUM
(1 of 2)

• Obtain a thorough history
• Check vital signs
• Physical exam
  ➢ Including neurological exam
• Laboratory
APPROACH TO DELIRIUM
(2 of 2)

• Work-up: select tests based on history, exam, and clinical picture
  - CBC, metabolic panel, blood gas, thyroid function tests, EKG, CT/MRI of the brain, lumbar puncture
MANAGEMENT (1 of 5)

- Provide supportive care
  - Maintain airway
  - Maintain fluid status
  - Provide proper nutrition
    - Monitor oral intake, which can be reduced or impossible

- Prophylaxis
  - DVT prophylaxis
  - GI prophylaxis when appropriate
MANAGEMENT (2 of 5)

• Identify causative factors
  ➢ H&P
  ➢ Laboratory and imaging results
  ➢ Remove, wean, or reduce any offending medications

• Re-orient patient
  ➢ Provide additional supervision when necessary
  ➢ Engage family support when possible to help orient patient
MANAGEMENT (3 of 5)

• Control environmental stimuli
  ➢ Provide access to glasses, hearing aids
  ➢ Remove catheters
  ➢ Avoid restraints
  ➢ Reduce noise
  ➢ Use appropriate lighting
  ➢ Reduce interruptions in sleep
  ➢ Allow for mobility
MANAGEMENT (4 of 5)

• Medications should be used only when non-pharmacologic management has failed and the patient is a danger to self

• Haloperidol 0.5–1mg PO or IM BID, can repeat PO dosing q4h or IM dosing q1h
  - Up to 3 mg/day
  - Not for use in patients with hepatic disease or history of neuroleptic malignant syndrome
  - Monitor for extrapyramidal symptoms
MANAGEMENT (5 of 5)

- Risperidone 0.5 mg PO BID
- Olanzapine 2.5–5 mg daily
- Quetiapine 25 mg PO BID
- Lorazepam 0.5–1 mg PO once, can repeat q4h
  - Can cause paradoxical agitation
- Trazodone 25–100 mg qhs
  - Monitor for sedation
SUMMARY

• Delirium is a common and serious condition

• It is preventable and treatable

• Diagnosis is based on 4 main clinical features

• Laboratory and radiologic work-up will support diagnosis and help identify etiology

• After proper diagnosis and identification of the causes, management should include environmental control

• Pharmacologic management can be helpful in certain situations
Delirium is not a disease but rather a systemic syndrome, characterized by decreased attention span and a waxing and waning type of confusion or alteration of consciousness.

It is caused by an array of chemical or disease-mediated processes disrupting normal cerebral function.

Clinically, delirium may present with hyperactive symptoms, such as agitation, combativeness, and hallucinations/delusions. Interestingly, these symptoms are reported more often by night-shift staff, as delirious patients tend to be more agitated and combative in evenings or at night time when environmental stimulation decreases and visual perceptions are disturbed. Such presentation should be differentiated from psychosis.
Delirium may also present with hypoactive symptoms, such as inability to converse, focus attention, or follow commands, as in patient discussed in this presentation. These symptoms should be differentiated from dementia or depression.

Delirium is probably the single most common acute state affecting adults in general hospitals. It affects 10%–20% of all hospitalized adults, 30%–40% of elderly hospitalized patients, and up to 80% of ICU patients.

In my experience in the acute rehabilitation setting, delirium is extremely common following major cardiac surgery.
• The incidence of delirium could be up to 20% in patients 60 years and older. This could be due to a combination of factors, such as older age, anesthesia, electrolyte disturbances, sleep deprivation, and post-op pain medication.

• Stroke is another risk factor for delirium. Delirium may be associated with specific stroke types, such as ICH or total anterior circulation infarction, or specific lesion locations such as the thalamus and caudate nucleus.
Main predisposing factors for delirium include older age, male gender, dementia, severe illness, visual impairment, psychiatric disorders, alcohol abuse, physical frailty, polypharmacy, malnutrition, renal impairment, and dehydration. In the acute hospital setting, we regularly induce or aggravate delirium with sleep deprivation, environmental change, medications, and overall dehumanizing of patients.

The presence of delirium increases the risk of poor functional outcome. These patients have more trouble participating in therapies, less information retention, more functional fluctuations, and a lower chance of being discharged home.
Recognizing delirium, differentiating its etiology, and initiating treatments early can affect rehabilitation outcome.

More importantly, we need to realize that 1/3 of all cases of delirium may be prevented by reducing polypharmacy, maintaining fluid and electrolyte balance, improving environmental stimuli, and advancing staff education.

Treatment of delirium requires early recognition and differentiation of underlying causes in each patient, as various etiologies may contribute to delirium. Further testing and management plans need to address the most urgent and correctable etiologies, followed by those conditions that are non-urgent or chronic.
REFERENCES


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