Delirium for Dummies

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Learning Objectives

- Identify and understand risk factors for delirium
- Recognize clinical features of delirium
- How to screen for and diagnose delirium
- Management strategies for delirium
- Understand the limited role of psychoactive medications

Let's Define Delirium

The World Health Organization's International Classification of Diseases defines delirium by disturbance in cognition manifested by both 'impairment of immediate recall and recent memory' and 'disorientation to time, place and person.'

Table 1. DSM-5 Diagnostic Criteria for Delirium

A. A disturbance in attention (i.e., reduced ability to direct, focus, sustain, and shift attention) and awareness (reduced orientation to the environment).

B. The disturbance develops over a short period of time (usually hours to a few days), represents a change from baseline attention and awareness, and tends to fluctuate in severity during the course of a day.

C. An additional disturbance in cognition (e.g., memory deficit, disorientation, language, visuospatial ability, or perception).

D. The disturbances in Criteria A and C are not explained by another preexisting, established, or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal, such as coma.

E. There is evidence from the history, physical examination, or laboratory findings that the disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal (i.e., due to a drug of abuse or to a medication), or exposure to a toxin, or is due to multiple etiologies.

DSM-5 = Diagnostic and Statistical Manual of Mental Disorders, *5th ed.*

Delirium vs Dementia

	Delirium	Dementia
Onset	More abrupt decline in cognitive function over hours to days, with waxing and waning course	Typically insidious, progressive decline in cognition over months to years
Attention and orientation	Impaired	Generally preserved; can be altered in later stages
Level of consciousness	Fluctuating, sometimes reduced	Normal
Speech and language	Incoherent, disorganized speech	Variable impairments in word retrieval, naming, fluency, and comprehension
Memory for recent and past events	Variable, fluctuating impairments	Often impaired for recent events; memory for remote events becomes impaired in later stages

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Types of Delirium

There are 3 subtypes of delirium:

1. Hypoactive
    a. 4 behaviors need to be met: unawareness, decreased alertness, slow or sparse speech, slowed movements, lethargy, apathy, or staring
    b. 50%
2. Hyperactive
    a. 3 behaviors need to be met: hypervigilance, fast or loud speech, irritability, restlessness, combativeness, impatience, uncooperativeness, anger, fast motor responses, distractibility, swearing, singing, laughing, easy startling, tangentiality, nightmares, or persistent thoughts
    b. 9-31%
3. Mixed
    a. Presents with both hypoactive and hyperactive delirium and is most common subtype
    b. This and hypoactive account for 80%

Epidemiology

- Most studies occur in hospital setting
- About 30% of hospitalized patients experience delirium during hospitalization

Table 2. Incidence and Prevalence of Delirium in Older Persons

Setting	*Rate*
Incidence during hospital admission	
After hip fracture	28% to 61%
After surgery	15% to 53%
During hospitalization (medical inpatients)	3% to 29%
Prevalence	
Intensive care unit	
With mechanical ventilation	60% to 80%
Without mechanical ventilation	20% to 50%
Hospice	29%
Community (persons 85 years or older)	14%
At hospital admission	10% to 31%
Long-term care facility and postacute care	1% to 60%

Risk Factors

- Increase in baseline vulnerability (predisposing factors)
  - Age >65; 50% of older patients experience delirium
  - Male sex
  - Dementia
  - Stroke
  - Parkinson’s disease
  - Depression
  - Alcoholism
- Precipitating Factors
  - Drugs and toxins
  - Infection
  - Metabolic derangements
  - Brain disorders
  - Systemic organ failure
  - Physical disorders

Risk Factors

- Review all medications!
  - Analgesics
  - Antibiotics and antiviral medications
  - Anticholinergics
  - Antiseizure medications
  - Antidepressants
  - Cardiovascular and hypertension medications
  - Steroids
  - Dopamine agonists
  - GI agents
  - Herbal preparations
  - Sedatives, muscle relaxants, CNS-active agents

Detecting Delirium

- 4AT- Delirium detection tool
  - Alertness: ask patient to state name and address
    - Normal= 0
    - Mild sleepiness for <20 seconds after waking, then normal= 0
    - Clearly abnormal= +4
  - AMT 4: Age, date of birth, place (name of hospital or building), current year
    - No mistakes= 0
    - 1 mistake = +1
    - ≥2 mistakes or untestable = +2
  - Attention: instruct patient to list months in reverse order, starting at December
    - Lists ≥7 months correctly= 0
    - Starts but lists <7 months, or refuses to start= +1
    - Untestable (cannot start because unwell, drowsy, inattentive)= +2
  - Acute change or fluctuating course (within last 2 weeks and still persisting in last 24 hr)
    - No=0
    - Yes= +4

Detecting Delirium: Confusion Assessment Method (CAM)

Feature	Assessment
1. Acute onset and fluctuating course	Usually obtained from a family member or nurse and shown by positive responses to the following questions: ▪ "Is there evidence of an acute change in mental status from the patient's baseline?" ▪ "Did the abnormal behavior fluctuate during the day, that is, tend to come and go, or increase and decrease in severity?"
2. Inattention	Shown by a positive response to the following: ▪ "Did the patient have difficulty focusing attention, for example, being easily distractible or having difficulty keeping track of what was being said?"
3. Disorganized thinking	Shown by a positive response to the following: ▪ "Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?"
4. Altered level of consciousness	Shown by any answer other than "alert" to the following: ▪ "Overall, how would you rate this patient's level of consciousness?" • Normal = alert • Hyperalert = vigilant • Drowsy, easily aroused = lethargic • Difficult to arouse = stupor • Unarousable = coma

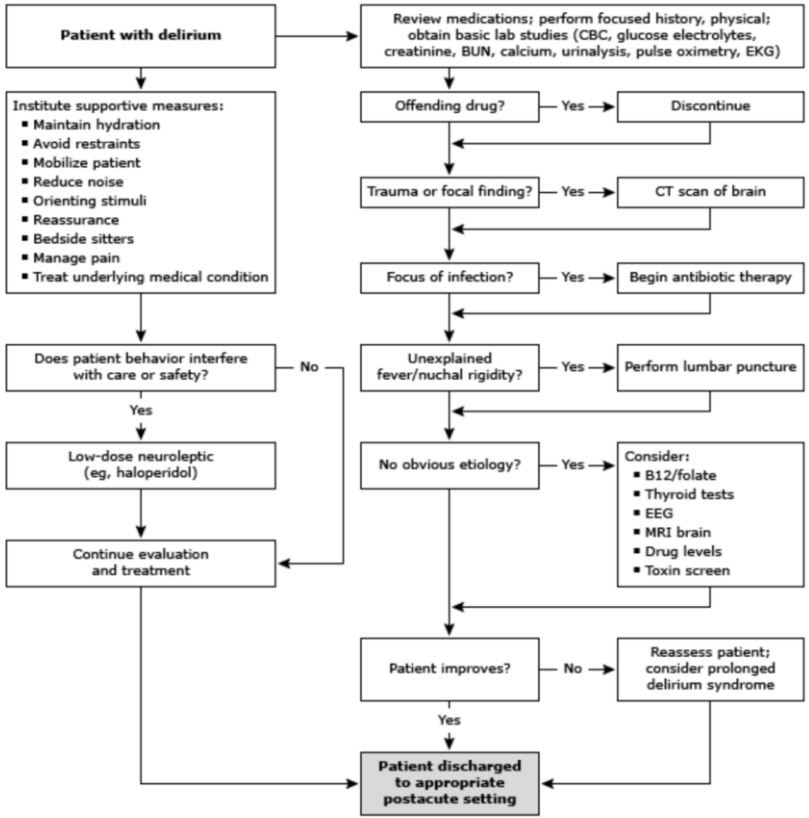
Detecting Delirium

- Consider labs and imaging when appropriate/high clinical suspicion
  - BMP, CBC, Ca, urinalysis, UCx
  - Drug levels. Delirium can be caused by therapeutic levels
  - Tox screen
  - Blood gas
  - LFT
  - TSH
  - B12
  - Neuroimaging: CT head
  - Lumbar puncture

Management

- Treat the underlying cause!
- Important things to address:
  - Dehydration/constipation
  - Hypoxia
  - Mobility
  - Pain control
  - Nutrition
  - Sensory impairment
  - Sleep
  - Medications

Assessment and management of patient with delirium



CBC: complete blood count; BUN: blood urea nitrogen; EKG: electrocardiogram; CT: computed tomography; EEG: electroencephalogram; MRI: magnetic resonance imaging.

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Management: Nonpharmacologic

- For cognitive impairment and disorientation:
  - Ensure consistency in care by limiting number of staff and minimizing turnover
  - Provide appropriate lighting and clear signage
  - Provide an accurate clock and calendar
  - Orient patient by explaining person, place, and your role
  - Introduce cognitively stimulating activities
  - Encourage and facilitate regular visits from family and friends
  - Avoid sensory overload, minimize light at night, quiet environment
  - Educate the family
- Physical restraints: last resort
  - Increases agitation, increases loss of mobility, pressure ulcers, aspiration, prolonged delirium

Management: Pharmacologic

- Reserved for severe agitation where patient is a threat to harm themself or others
- No FDA approved medication for management of delirium
- Agent of choice: Low-dose Haloperidol (0.5-1mg)
    - Most evidence and studies
- Short-term use- higher risk of mortality in patients with dementia

Table 8. Pharmacologic Treatment of Delirium

Drug	*Dosage*	*Adverse effect*	*Comment*
Antipsychotic*			
Haloperidol	0.5 to 1.0 mg twice daily orally every fours or intramuscularly every 30 to 60 minutes as needed (maximum dosage of 20 mg in a 24-hour period)	Extrapyramidal effects, prolonged corrected QT interval/torsades de pointes, metabolic syndrome with long-term use	Agent of choice Avoid intravenous use because of short duration of action Avoid in patients with withdrawal syndrome, hepatic insufficiency, neuroleptic malignant syndrome, or Parkinson disease Associated with increased mortality rate in older patients with dementia-related psychosis
Atypical antipsychotics*			
Olanzapine (Zyprexa)	2.5 mg once daily orally (maximum dosing of 20 mg in a 24-hour period)	Extrapyramidal effects, prolonged corrected QT interval/torsades de pointes, increased risk of cerebrovascular accident, hypotension, anticholinergic effects, metabolic syndrome with long-term use	Associated with increased mortality rate in older patients with dementia-related psychosis
Quetiapine (Seroquel)	25 mg twice daily orally		
Risperidone (Risperdal)	0.5 mg twice daily orally		
Benzodiazepine			
Lorazepam (Ativan)	0.5 to 1.0 mg every four hours orally as needed	Paradoxical excitation, respiratory depression, oversedation	May worsen delirium
Antidepressant			
Trazodone	25 to 150 mg orally at bedtime	Oversedation	Second-line agent Associated with prolonged and worsening delirium symptoms

**—Indiscriminate use of antipsychotics has been associated with potential dangers in older persons. Physicians should consult the U.S. Food and Drug Administration boxed warnings for each medication before prescribing.*

Information from references 36, 37, 43, and 44.

Prognosis/Outcomes

- Prolonged hospitalizations
- Irreversible functional and cognitive decline
- Higher risk of institutionalization
- In hospitalized older patients, increased mortality
  - 14.5-37%
- Hypoactive delirium has worse prognosis
- Protracted/persistent delirium associated with increased 1-year mortality compared to delirium that resolved quickly

Main Takeaways

- In older persons, prevention of delirium is important
- Use validated tools to help identify if delirium is present
- Review medications, polypharmacy
- Treat the underlying cause
- Nonpharmacologic treatment is preferred
- Treat ASAP, the longer delirium persists, the poorer the prognosis

References

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Thank You!