Delirium in Neuropsychological Assessment

Neuropsychological Disorders · https://neuro.vip/neuropsychology/neuropsychological-disorders/differential-diagnosis-of-delirium-in-neurocognitive-disorders/

Delirium is a common and serious **neuropsychiatric syndrome** seen across healthcare settings, characterised by an **acute disturbance in attention, awareness, and cognition**. Proper differentiation of delirium from other causes of cognitive impairment, such as dementias, is crucial, as **delirium is usually reversible** if the underlying cause is promptly identified and managed, while dementias are typically chronic and progressive.

This article provides an overview for clinical neuropsychologists on distinguishing delirium from other cognitive disorders, focusing on key clinical features, assessment strategies, and common differentials.

DSM-5 Definition of Delirium

Delirium is a disruption of attention and awareness, plus one other aspect of cognition, with rapid onset (hours to days), representing a change from baseline that fluctuates over time and severity. Must result from an underlying biological process.

Prevalence of Delirium

- **General medical inpatients**: ~25% of older adults
- **Post-surgical**: 5% (elective, healthy) to 20%+ (frail, major procedures)
- **ICU patients**: ~33% (higher with mechanical ventilation)
- **Neuro ICU**: Up to 80%
- **Post-stroke**: ~25%
- **Palliative care**: 33% (up to 90% near end-of-life)
- **Pediatric**: Highly variable, often missed

Clinical Features of Delirium

Delirium is defined by the following core features:

- **Acute Onset & Fluctuating Course:**
  Symptoms develop over hours to days and tend to fluctuate in severity throughout the day, often worsening at night (sundowning).
- **Disturbance in Attention:**
  Reduced ability to direct, focus, sustain, or shift attention.
- **Impaired Awareness:**
  Decreased orientation to the environment.
- **Additional Cognitive Deficits:**
  Recent memory impairment, disorganised thinking, language disturbances, and perceptual disturbances (such as hallucinations).
- **Altered Level of Consciousness:**
  May range from hyperactive (agitated) to hypoactive (lethargic) or mixed presentations.

Common precipitating factors include infection, metabolic imbalance, medication effects, withdrawal syndromes, acute medical illness, and postoperative states.

Key Differentiators: Delirium vs Dementia

Time Course

- **Delirium**: Develops *acutely* (hours to days); fluctuates and is potentially reversible.
- **Dementia**: Develops *insidiously* over months or years; generally progressive and irreversible.

Attention and Level of Consciousness

- **Delirium**:
  Profound inattention and fluctuating level of consciousness are characteristic.
- **Dementia**:
  Attention is relatively preserved, especially early on; consciousness is typically unimpaired until late in the disease.

Course Fluctuation

- **Delirium**:
  Marked diurnal fluctuations and variability of symptoms.

- **Dementia**:
  Symptoms are more consistent from day to day, though “sundowning” may exacerbate confusion in later stages.

Cognitive Profile

- **Delirium**:
  Disorganised thought, distortion of time/place/person, perceptual disturbances (e.g. visual hallucinations), marked memory and language impairments may occur but are variable and often inconsistent.
- **Cortical Dementias:** (e.g. Alzheimer’s, frontotemporal dementia):
  Prominent deficits in memory, language, praxis, visuospatial skills; typically gradual, consistent decline.
- **Subcortical Dementias:** (e.g. Parkinson’s disease dementia, Huntington’s, vascular subcortical dementia):
  Slowed processing speed, impaired attention, executive dysfunction, bradyphrenia, mood changes; memory loss less prominent than in cortical dementias.

Reversibility

- **Delirium**:
  Often completely reversible if the precipitating factor is treated.
- **Dementia**:
  Progressive and irreversible.

Associated Features

- **Delirium**:
  Altered sleep-wake cycle, illusions, hallucinations (especially visual), autonomic instability, marked motor restlessness or retardation.
- **Dementia**:
  Psychiatric symptoms possible (e.g. hallucinations in Lewy body dementia), but typically no prominent autonomic symptoms or acute sleep-wake cycle inversion in early stages.

Common Causes of Diagnostic Confusion in Delirium

- **Delirium Superimposed on Dementia:**
  Older adults with pre-existing dementia are at heightened risk for developing delirium. This can make recognition more challenging, but acute fluctuating symptoms and a step-change from baseline should raise suspicion.
- **Psychiatric Disorders:**
  Depression ("pseudodementia") can share features with both delirium and dementia but lacks acute onset, attention disturbance, and fluctuating consciousness.
- **Cortical Dementias:**
  Alzheimer's disease, semantic dementia, and other frontotemporal degenerations may sometimes show daytime confusion, word-finding difficulties or inattention, but the time course and progression differ.
- **Subcortical Dementias:**
  Disorders such as Parkinson's disease dementia or vascular dementia can have psychomotor slowing and attentional problems, often confused with hypoactive delirium, but do not usually show the acute, fluctuating changes in awareness and mental state typical of delirium.

Clinical Assessment Approach in Delirium

History

- Establish a clear timeline: *When was the last time the patient was at baseline?*
- Ask carers about speed of change, fluctuations, and precipitating events (illness, medication changes, dehydration).

Examination

- **Neuropsychological Assessment:**
  Brief bedside tests of attention (e.g. digit span, days of week backwards) are very sensitive to delirium.
- **Level of consciousness:**
  Observe for drowsiness, waxing and waning alertness.
- **Neurological examination:**
  Assess for focal deficits (may indicate stroke/subcortical disorder).

- **Instrumental Assessment:**
  Tools such as the Confusion Assessment Method (CAM) or 4AT can assist in identifying delirium.

Investigations

- Screen for infection (urinalysis, chest X-ray, blood cultures), metabolic derangements, medication effects, pain, constipation, hypoxia.
- Neuroimaging may be indicated if new focal deficits or suspicion of acute structural brain disease.

Practical Points for Clinical Neuropsychologists Working with Delirium

- **Delirium is a medical emergency:**
  If suspected, urgent medical evaluation is required.
- **Postpone extensive cognitive testing until delirium resolves:**
  Results obtained during delirium are **not reliable** indices of premorbid abilities.
- **Baseline collateral information is key:**
  Speak with family or caregivers to ascertain the patient's usual cognitive status and timing of change.
- **Educate teams and carers:**
  On the fluctuating, reversible nature of delirium as opposed to the progressive course of dementias.

Delirium Versus Dementia Summary Table

Feature	Delirium	Cortical Dementia	Subcortical Dementia
Onset	Acute (hours–days)	Insidious (months–years)	Insidious (months–years)
Course	Fluctuating, variable; often worse at night	Gradual, progressive	Gradual, progressive

Feature	Delirium	Cortical Dementia	Subcortical Dementia
Awareness/Consciousness	Impaired, fluctuates	Preserved until late stages	Usually preserved initially
Attention	Severely impaired	Often normal early, affected late	Mild impairment early
Main deficits	Attention, perception, global cognition, often stark difficulties with simple mathematics	Memory, language, praxis, visuospatial	Processing speed, executive
Reversibility	Usually reversible	Not reversible	Not reversible
Associated features	Hallucinations, sleep inversion, agitation	Personality change, apathy, psychosis	Slowness, mood, apathy, falls

Delirium Treatment

(the following suggestions are based on the NavNeuro Delirium Podcast mentioned below)

Pharmacological

Current Best Practices:

- Remove/reduce harmful medications first
- Mood stabilizers (Depakote) as first-line
- Low-dose Clonidine patches
- Dexmedetomidine (Precedex) for ICU patients
- Limited use of antipsychotics (short-term only)

Avoid/Minimize:

- First-generation antipsychotics (Haldol)
- Benzodiazepines

- Prolonged sedation

Non-Pharmacological (Primary Focus)

Environmental Modifications:

- Reduce noxious stimuli (noise, alarms)
- Natural light during day, darkness at night
- Large visible clocks/calendars
- Familiar objects and photos
- Consistent staff when possible

Patient Care:

- Family involvement and education
- Progressive mobility/activity
- Structured routine with rest periods
- Sensory aids (glasses, hearing aids)
- Remove confusing stimuli (TV, phones during acute phase)

Architectural Innovations:

- Home-like ICU design
- Acoustic isolation of medical devices
- Natural light and plant life
- Family visiting spaces

Family Support

Education Topics:

- Explain delirium as medical condition
- Distinguish from psychiatric illness
- Address guilt about patient's words/actions
- Provide realistic expectations

Support Strategies:

- ICU diaries for communication

- Self-care counseling for families
- Resources for Family Post-Intensive Care Syndrome (FPICS)

Podcast: Delirium – A Conversation With Dr. Kirk Stucky

Embedded media:
https://play.libsyn.com/embed/episode/id/31035648/height/128/theme/modern/size/standard/thumbnail/yes/custom-color/56595a/time-start/00:00:00/playlist-height/200/direction/backward/download/yes/font-color/FFFFFF

Dr. Kirk Stucky talks about Delirium for Clinical Neuropsychologists in this Neuropsychology Podcast from Navigating Neuropsychology.

Summary

Delirium is distinct from cortical and subcortical dementias in its acute onset, fluctuating course, attentional deficits, and the potential for full reversibility. Careful assessment of history, attention and consciousness, along with collateral and clinical information, is essential for accurate differentiation. Early recognition and management of delirium can prevent further complications, making the distinction clinically vital in all settings.

References/Key Resources

- DSM-5: Criteria for Delirium and Major/Mild Neurocognitive Disorders
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- Jandu JS, Mohanaselvan A, Fang X. Differentiating Delirium Versus Dementia in Older Adults. [Updated 2025 Feb 17]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK570594/
- McCabe, D. (2019). The Confusion Assessment Method (CAM). *Best Practices in Nursing Care to Older Adults* (Issue No. 13, Revised 2019). The Hartford Institute for Geriatric Nursing, New York University Rory Meyers College of Nursing. https://www.va.gov/covidtraining/docs/The_Confusion_Assessment_Method.pdf
- NICE Guidelines: Delirium: prevention, diagnosis and management
- 4AT Rapid Assessment Tool