

# Delirium

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## Abstract

Delirium is a common, underdiagnosed and suboptimally managed neuropsychiatric syndrome. The 5th edition of the Diagnostic and Statistical Manual of Mental Disorders defines it as acute disturbance of attention with a fluctuating clinical picture. Delirium can present in various clinical settings and have a multifactorial aetiology. It is associated with increased morbidity and mortality. Early recognition of delirium helps to prevent further deterioration of pre-existing cognitive syndromes. Therefore, proactive screening, early detection and prompt management through risk stratification can improve the outcome. There is incomplete evidence for drug treatment forming part of multicomponent interventions in the prevention and management of delirium. Further research is warranted, including the systematic identification of high-risk patients undergoing major procedures as well as the prophylactic or pre-emptive use of appropriate drugs and dosages.

**Keywords** Acute confusion; antipsychotics; delirium; delirium management; delirium management guidelines; delirium treatment

## Definition

The European Delirium Association and American Delirium Society suggest that diagnosing delirium utilizing the revised criteria outlined by the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) can be most inclusive to successfully cover most cases. Disturbance of attention and awareness, an acute change from baseline, fluctuations in severity during the day with additional disturbances in cognition are the key DSM-5 diagnostic criteria (Table 1). However, the meaning of the word ‘attention’ needs clarity as, in contrast to previous diagnostic classifications, DSM-5 does not include the word ‘consciousness’ as a criterion.

## Epidemiology

Delirium is disturbing for patients, family members and staff in general hospitals. It is a complex yet understudied neuropsychiatric syndrome with a prevalence ranging from 70% to 80% in

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## Key points

- A detailed medical history including information from a collateral source, physical examination and investigations should aim to evaluate co-morbid physical disorders
- Aetiological and risk factors, including predisposing features and precipitating factors, guide clinicians in the management of delirium
- Non-pharmacological strategies, including educating nursing staff, early medical consultation, mobilizing patients, monitoring their medication and making environmental and sensory modifications, play an important role in reducing the chances of delirium
- A judicious use of a low-dose antipsychotic such as quetiapine, olanzapine or haloperidol could be considered. The pharmacological intervention although not licensed is based on the clinical experience with evidence from a small number of RCTs and anecdotal experience with various case series

critical care and 20% to 50% in general hospital wards. In general terms, one in four inpatients in general hospital are likely to suffer from delirium during their admission.

## Aetiology

Delirium has a multifactorial aetiology. Therefore, establishing its cause is an important and challenging process. Certain risk factors increase the risk of delirium. The predisposing or precipitating aetiological factors include both vulnerability factors and noxious insults. For example, an elderly person with pre-existing cognitive impairment and poor physical health can be considered vulnerable to developing delirium in association with an infection. Similarly, a high-risk noxious insult, such as major surgery, in a relatively healthy person can contribute to its development. Attending to the reversible causes is key to management. These include drugs, infections, electrolyte imbalances and many other medical conditions (Table 2).

## Clinical features

A detailed history forms the basis for making a diagnosis of delirium. With the number of people with dementia increasing, information from caregivers as collateral informants should be included. It is important to recognize the acute onset and wide range and nature of symptoms in delirium. There are three motor subtypes: hypoactive (apathetic and withdrawn), hyperactive (agitated and distractible), and mixed (shifting between hypoactive and hyperactive states). Diagnostic features include disturbance in attention and thought-process abnormalities. Other symptoms include cognitive deficits such as disorientation (76–96%), memory deficits (88–96%), alterations in the sleep–wake cycle (92–97%), changes in motor behaviour (24–94%) and language disturbances (57–67%). Some patients present with non-cognitive symptoms such as hallucinations (50–63%), changes in mood (43–86%) and delusions (21–31%).

### Key points for DSM-5 criteria for diagnosing delirium

- A disturbance of attention
- A disturbance of cognition
- The disturbance develops over a short period of time
- A change from baseline attention and awareness
- Fluctuation in severity during the course of a day
- Disturbances not explained by another pre-existing or evolving neurocognitive disorder
- Evidence from the history, physical examination or laboratory findings to suggest delirium

Table 1

### Key predisposing and precipitating factors for delirium

Predisposing factors	Precipitating factors
• Advanced age	• Acute illness
• Male sex	• Severity of physical illness
• Visual impairment	• Infection, especially urinary tract
• Presence of dementia	• Hyponatraemia
• Severity of dementia	• Shock
• Depression	• Immobilization and physical restraint
• Immobility	• Bladder catheterization
• Dehydration	• Surgery
• Metabolic abnormalities	• Intensive care unit admission
• Alcohol misuse	• Medication, changes and additions
• Narcotics, sedatives	
• Anaemia	
• Pain	
• Malnutrition	

Table 2

Dementia and delirium often coexist in elderly hospital inpatients with previously undiagnosed dementia. Screening tools such as the Confusion Assessment Method (CAM), Delirium Symptom Interview, Cognitive Test for Delirium and Delirium Observation Scale can help to identify delirium. Other scales can assess its severity (Delirium Index, Memorial Delirium Assessment Scale, Delirium Rating Scale Revised 98). The Informant Questionnaire of Cognitive Decline in the Elderly (short form) shows high sensitivity and specificity for detecting pre-existing dementia in older people with delirium. In the absence of access to specific tools designed to assess delirium, tools for assessing general cognitive impairment can be helpful in monitoring it (e.g. Clock Drawing Test (CDT), Montreal Cognitive Assessment (MoCA), Mini-Mental State Examination (MMSE)).

### Natural history and prognosis

For optimal management, it is important to understand the prognostic factors associated with delirium. Three clinical scenarios (Box 1) can illustrate the likelihood of varied management and clinical outcomes. When medical patients with or without delirium are compared, mortality rates are higher with delirium, although not all evidence is consistent.

In a systematic review of the occurrence and outcome of delirium, the associated death rate was reported to be 14.5–37%.

Several risk factors for a poor outcome have been identified. Medical causes such as stroke, Parkinson's disease and hypertension, along with demographic factors like female sex and living alone, are independent risk factors of poor outcome in activities of daily living in individuals who suffer from dementia and develop delirium. Hypoactive delirium was reported to be associated with a poorer prognosis. Use of haloperidol in established delirium in palliative care patients has been associated with death within 2 weeks.

### Management

#### Assessment

A detailed medical history including information from a collateral source should aim to evaluate underlying physical disorders. A thorough review of prescribed medication and any recent changes are integral to this assessment. Full physical examination should be undertaken, with monitoring of vital signs. Further baseline investigations should always be considered, including full blood count, electrolyte concentrations, renal and liver function, urine analysis, chest X-ray and electrocardiograph (ECG). Additional investigations should also be considered based on the history and examination (Figure 1).

The standard management and prevention of delirium includes specific environmental interventions and physical and psychological management aimed at preventing or correcting the

#### Clinical scenario 1:

An 80-year-old, independently living, retired banker complained of difficulty sleeping. He had grown increasingly restless and was unable to concentrate. The night before presenting to the GP, he reported seeing things and hearing some voices. There was a past history of benign prostate enlargement. He was diagnosed with a urinary tract infection. Antibiotics were prescribed. Two days later, all the symptoms had resolved.

#### Clinical scenario 2:

A 75-year-old widow was recently diagnosed with early Alzheimer's-type dementia. Her family found her to have been less communicative for a couple of days, and she was initially considered to be depressed. She had a past history of diabetes mellitus, hypertension and breast carcinoma. She was disorientated and thought she was in a 5-star hotel. On examination, breath sounds were decreased over the left lower lobe of her lung. Antibiotics were given along with low-dose quetiapine for 7 days. No long-term medication was given for depression. On follow-up, she had improved in attention and cognition.

#### Clinical scenario 3:

A 60-year-old man with left-sided intermittent weakness was admitted via the emergency department to the neurology unit. The initial impression was that of a transient ischaemic attack. He was agitated and wanted to leave, resulting in his being restrained. There was an element of paranoid ideation, with misidentification of relatives. He was feverish. Both quetiapine and lorazepam were given. After 2 weeks, he was more settled although he continued to exhibit fluctuations of cognition at night.

#### Box 1

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