

Confusion and delirium

David Bates

Abstract

Confusion and delirium are the most common behavioural disorders seen in an acute medical or surgical unit. Confusion can be regarded as a mild form of delirium and may give warning of the development of the more severe disorder. It causes an acute change of mental status, characterized by abnormal and fluctuating attention. It affects between 10 and 30% of medically ill patients, especially the elderly and often shortly after admission to hospital. It causes prolonged admission, increased morbidity and mortality, and delayed discharge, often to long-term care. Its causation is reviewed and its prevention and management is described.

Keywords clinical signs; confusion; delirium; prognosis

Confusion and delirium

Confusion

Clouding of consciousness characterized by an impaired capacity to think, understand and respond to and remember stimuli is termed 'confusion'.¹ Patients are disoriented and exhibit reduced attention, inability to express thoughts, drowsiness and defects in memory. Confusion must be distinguished from dysphasia, amnesia, acute psychosis, the retardation of severe depression and dementia. Confusion is most commonly seen as a result of toxic or metabolic abnormalities, particularly in the elderly.²

Delirium

Delirium is characterized by motor restlessness, hallucination and disorientation, and can be regarded as a more profound state of confusion and should alert the doctor to impending coma.

Despite their commonness, confusion and delirium are often misdiagnosed, or not diagnosed, especially in the elderly. The problem is increased by the fact that dementia is one of the risk factors for confusion. The acute disorder, with fluctuating attention, must be differentiated from the chronic disorder of dementia because it may be an important clue to, and possibly the only sign of, an underlying life-threatening condition which is potentially correctable.

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History

The diagnosis should always be considered when there is a history of abrupt decline in mentation, especially in the patient admitted to hospital. Corroboration of the normal mental state of the patient from relatives or carers is essential and recognition of an abrupt change is vital.

Four factors predispose to the development of confusion: visual impairment, severity of illness, prior cognitive impairment and dehydration. The most important is a history of cognitive impairment or dementia, particularly in the elderly, in whom the severity of the physical illness and resulting immobility are important factors.² All predisposing factors are additive, and the greater the number, the greater the likelihood of confusion and delirium. In hospital, five other factors may precipitate the condition: physical restraints, malnutrition, an indwelling urinary catheter, the prescription of more than three new medications within 24 hours and a medical complication, such as electrolyte disturbances, hypoxia or sedation. The novel surroundings of a hospital ward disorientate the patient and increase the risk.

The diagnosis may often be suggested by relatives and carers who notice the change in alertness and responsiveness, but general nursing observation of the patient and the recognition of disorientation, fluctuations in alertness and changes in a mini-mental state examination are important clues.

Onset

Confusion usually develops rapidly over hours to days, and fluctuates during the day, sometimes allowing lucid intervals, which may be mistaken for recovery. Marked fluctuations in attention and arousal are most apparent during the night.

Findings include:

- Attention: the patient is distractible, all levels of attention are disturbed – selectivity, sustainability, processing capacity, mobilization and focus of attention.
- Thought: the intrusion of competing thoughts causes the patient to lose the flow. This is manifest as rambling or jumbled speech, with hesitation, repetition and perseveration.
- Consciousness: most patients are lethargic, but some, particularly those with delirium tremens, may be hyper-alert. Extremes of consciousness may alternate.
- Perception: the patient may ignore events, or describe illusions or misperceptions. Visual hallucinations, usually unpleasant, occur, particularly with drug withdrawal.
- Sleep/wake cycles: there is frequently daytime drowsiness and nocturnal restlessness and wakefulness. The patient may arise from the bed and wander around the unit during the night, causing distress and concern for fellow patients.
- Psycho-motor: patients may be hypoactive or hyperactive, and about half will fluctuate between extremes. Drug-related withdrawal states are associated with hyperactivity and distressing hallucinations. These patients have a better prognosis, they are often younger, and the attacks short-lived.
- Disorientation: the patient is disorientated and usually amnesic. The disorientation rarely relates to person, but more commonly to site.
- Writing: a change in writing may be an early indication of confusion. There may be tremulousness, loss of the normal form of letters, misspelling of words and micrographia, often scrawled across the page.

- Behavioural: confused patients describe paranoid and frightening delusions which fluctuate. There may be emotional lability.

Scales and assessments

The commonly used mental status scales and tests do not help in differentiating delirium from dementia, although fluctuation in performance in the tests suggests the former. There is a widely used assessment scale to help diagnose confusion and delirium³ (Table 1).

Physical examination: the physical examination is to identify signs of systemic illness, including pyrexia, determine focal neurological signs, meningismus or raised intracranial pressure, and to exclude head trauma.

It is common to find tremor, asterixis, myoclonus or involuntary jerking; these imply a toxic or metabolic cause. More rarely, there may be chorea, dysarthria and ataxia, and catatonia or carphologia, that is plucking at bedclothes. Autonomic nervous system disturbances can cause dehydration, electrolyte disturbances and tachyarrhythmia.

Laboratory tests: haematological and biochemical assessment is obligatory, with particular importance being paid to the level of glucose, electrolytes, urea, creatinine, liver function tests and ammonia, thyroid function and arterial blood gas studies. Urinalysis and urine drug screening are essential, and radiology of the chest and an electrocardiogram (ECG) should be performed.

The electroencephalogram (EEG) is abnormal, with disorganization of the usual rhythms and generalized slowing. Low-voltage fast wave activity may indicate the effects of withdrawal from sedative drugs or alcohol, and focal slowing, paroxysmal discharges or periodic complexes may draw attention to a primarily intracranial cause and indicate the need for imaging. The finding of a normal EEG in a patient who appears delirious tends to exclude the diagnosis and indicate a more chronic dementing illness or a psychiatric cause.

Neurological investigations with imaging and a lumbar puncture are usually unnecessary, but important where the cause remains uncertain. A lumbar puncture, always preceded by cranial imaging in the case of a patient with focal neurological abnormalities or raised pressure, may be diagnostic.

Confusion assessment method (CAM)

1. Acute onset and fluctuating course (mental status changes from hours to days)
2. Difficulty in focusing (easily distracted, unable to follow interview)
3. Disorganized thinking (rambling, irrelevant conversation)
4. Altered level of consciousness (from hyper-alert to decreased arousal)

A positive CAM test for delirium and confusion requires items 1 and 2 and either item 3 or item 4.

Table 1

Differential diagnosis

Causative factors for confusion and delirium are additive and therefore the identification of one potential cause does not exclude others. The most common causes among the elderly are metabolic disturbances, iatrogenic drugs, infection and stroke. In the young, the most common causes are drug abuse and alcohol withdrawal.

Metabolic disturbances: these, the most common cause of confusion and delirium, should be identified by appropriate testing. Hypoglycaemia or hyperglycaemia, hypoxia (which may be detected and monitored by oximetry), dehydration and electrolyte disorders are part of the routine screen, but it should be remembered that rapid changes in the electrolyte levels may be more important than the level itself: an elderly lady who has adapted to serum sodium of 115 mmol/litre over several months may not be symptomatic, whereas someone whose sodium has fallen from 140 to 120 mmol/litre within 24 hours will inevitably have symptoms.

Heart failure or other major organ failure should always be considered, the presence of toxins must be sought, thiamine deficiency should always be suspected and rarer causes, such as porphyria and hyperammonaemia, may need investigation.

Drugs: the social abuse of drugs, either by intoxication or withdrawal, is a common cause of confusion in the young patient. Delirium tremens commonly occurs between 72 and 90 hours after withdrawal of alcohol. In all patients, particularly the elderly, the iatrogenic use of agents such as anticholinergic medication, benzodiazepines, narcotic analgesics and anti-Parkinsonian medications should be considered potential causes. The use of corticosteroids may result in profound changes if given a dose of greater than 40 mg of prednisone per day, and all intrathecal therapy may potentially cause confusion and delirium.

Infections: the most common infections overlooked as a cause of confusion and delirium are in the urinary tract, upper respiratory tract and or are due to septicaemia. Encephalitis and meningitis should always be considered, and immunosuppression, either due to AIDS or as the result of treatment with cytotoxic agents, should be considered.

Strokes: confusion may occur as a non-specific consequence of any acute stroke and will usually resolve within 24–48 hours. More prolonged confusion and delirium is seen with non-dominant hemisphere strokes and with strokes in the posterior cerebral artery territory resulting in bilateral or dominant occipito-temporal lesions, which are often associated with visual field loss and agitation. Thalamic or posterior parietal cortex strokes can cause severe delirium and anterior cerebral artery rupture with subarachnoid haemorrhage may cause prolonged confusion. Sub-dural haematoma should always be considered in the elderly patient.

Rarer causes: the rarer causes of hypertensive encephalopathy, cerebral vasculitis and Behçet's syndrome should be considered. In children, migraine is occasionally the cause of confusion, but transient ischaemic attacks do not cause confusion or delirium.

Epilepsy: there are four situations in which epilepsy, diagnosed with the help of the electroencephalogram, may result in prolonged confusion and delirium:

- during absence status or complex partial status, or periodic lateralizing epileptiform discharges
- post-ictally, after a complex partial or generalized tonic clonic seizure
- interictally as a prodrome of impending seizures
- rarely in association with the effects of anticonvulsant medication, usually in overdose.

Postoperative causes: when delirium occurs in patients following surgery it is usually multifactorial. It is most commonly seen in the elderly, often in association with more generalized neurological system disease, a history of alcohol abuse, or with conditions that cause profound restriction in mobility. Persisting effects of anaesthetic and analgesic drugs should be considered, anticholinergic drugs should be excluded and the possibility of postoperative hypoxia or hypotension and electrolyte disturbances considered. It is more commonly seen after open-heart surgery and after large fractures, where the possibility of fat emboli should be considered. Intensive care psychosis is described as the result of sleep deprivation, immobilization, unfamiliarity, fear and sensory over-stimulation and may present as confusion.

Prevention and treatment

It is estimated that in 30–40% of patients who develop confusion and delirium, the syndrome could be avoided by high-quality care.² Risk factors need to be identified and corrected, education programmes for physicians and nurses to aid in detection and management reduce the incidence and nursing staff have a more important role than medical staff in this regard.

When confusion is identified, the cause should be sought and eliminated, symptomatic measures, including fluid and electrolyte balance, nutritional status and treatment of infections instituted, a moderate sensory environment established with the minimization of staff changes, restraint avoided and communication, explanation and support provided.

Drugs should be avoided as far as possible in patients who are confused or in delirium, all medication should be reviewed

and unnecessary drugs discontinued. When medication is essential the lowest possible dose should be used and barbiturates and long-acting benzodiazepines (e.g. diazepam, clonazepam) avoided. When the patient's behaviour interferes with medical care, or causes distress, sedation must be given; haloperidol is most commonly used, but should be tapered as quickly as possible. Atypical anti-psychotics (risperidone, olanzapine, ketiapine) can be helpful in low dosages and sometimes valproate, donepezil and ondansetron may be effective. There is no evidence that prophylaxis with haloperidol is effective, although in patients in whom delirium tremens is predicted, chlordiazepoxide may be prophylactic.

Prognosis

The prognosis for recovery from confusion and delirium is variable. When the causative factor can be identified and reversed, recovery may be complete with a few days. In the older patient, it may persist for longer and not everyone recovers.⁴

Delirium is an independent predictor for adverse outcome; there is an increased mortality rate, a poor return to cognitive and functional status, and an increased likelihood of nursing home admission. In general, hypoactivity delirium carries a poorer prognosis than hyperactivity delirium, which is more common in younger patients. ◆

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