

Delirium: prevention, diagnosis and management

Delirium is a very common syndrome in patients in hospital. Multiple factors contribute to its aetiology; however, it is five times more likely to develop in patients with pre-existing dementia. The condition is associated with significant mortality and morbidity, thus patients at high risk must be identified on admission and preventive measures put in place. This article reviews the prevention, diagnosis, assessment and management of delirium in elderly patients.

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Delirium, also known as acute confusional state, is a syndrome characterised by a disturbance in consciousness and cognition. The rate of onset is typically rapid, manifesting in a range of neuropsychiatric abnormalities that tend to fluctuate. An underlying cause can almost always be identified.

Delirium is very common in patients admitted to hospital, with an average prevalence in older people in general hospitals of 20% (range 7–61%).¹ The prevalence of delirium after a hip fracture is 43–61%.² The highest rates, however, are seen in older patients in critical care settings with incidence rates of 40% reported.³ Delirium appears to be an important marker of risk of dementia or death, even in older people without prior cognitive or functional impairment.⁴ It is associated with increased admission to long-term care, longer lengths of hospital stay and functional impairment.⁵

Also, impairment of cognitive function can persist for at least a year.⁶ All these factors make the prevention, rapid diagnosis and management of delirium vital.

Multiple factors contribute to the development of delirium. It is more common in those with a pre-existing organic brain syndrome,⁷ and patients with dementia are five times more likely to develop delirium.¹ Box 1 shows a list of predisposing and precipitating factors. The more risk factors a person has, the greater the likelihood of developing delirium.

Prevention

Since delirium can have a significant impact on the patient, their family and the health service due to the associated longer length of hospital stay, reduced functional ability, increased admission to long-term care and high mortality, preventing its occurrence is paramount. Up to

a third of cases of delirium are preventable.^{8,9} People at high risk can be identified at admission to hospital, with measures put in place to reduce any possible precipitating factors. Additionally, if avoidance of dehydration and malnutrition, early mobilisation, orientation and sleep promotion can help to reduce the incidence of delirium, then its occurrence can be used as a proxy marker of the quality of hospital care.¹⁰

A Cochrane review by Siddiqi et al¹¹ looked at six randomised controlled trials to determine the effectiveness of interventions designed to prevent delirium in patients in hospital. They found little evidence from delirium prevention studies to guide clinical practice, but one trial showed that a programme for proactive geriatric consultation may reduce delirium incidence and severity in patients undergoing surgery for hip fracture.¹² Another trial suggested that prophylactic low-

Box 1: Factors increasing likelihood of delirium**Predisposing factors**

- Increased age
- Prior cognitive impairment
- Sensory deprivation (visual or hearing impairment)
- Physical frailty
- Polypharmacy
- Renal impairment
- Prior comorbidity

Precipitating factors

- Use of physical restraint
- Infection
- Metabolic disturbance (hypoglycaemia, hypoxia, electrolyte imbalance)
- Pyrexia or hypothermia
- Surgery
- Drugs (especially those with anti-cholinergic side-effects, opiates, steroids)
- Withdrawal of drugs (especially benzodiazepines)
- Dehydration and malnutrition
- Sleep deprivation
- Urinary catheter
- Constipation
- Neurological (eg, stroke, subdural haematoma)

dose haloperidol may reduce the severity and duration of a delirium episode and reduce length of hospital stay in patients undergoing hip surgery.¹³

Diagnosis

Delirium may be unrecognised by doctors and nurses in up to two-thirds of cases¹⁴ and is commonly mistaken for dementia, depression, mania or part of old-age. Three subtypes have been described: hypoactive, hyperactive and mixed. Hyperactive delirium is more easily recognised and is characterised

by agitation and inappropriate behaviour. Hypoactive delirium, however, is the most common type and is characterised by withdrawal and apathy. It is therefore easily misdiagnosed as depression or is overlooked, which is associated with a poorer prognosis.

The diagnosis of delirium is clinical, and both the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Diseases (ICD) have diagnostic criteria. Additionally, the British Geriatrics Society published guidelines in 2006 for the prevention, diagnosis and

management of delirium in older people in hospital (box 2).¹⁵

History

Patients with delirium are often unable to give an accurate history so information should be sought from their family, carers, general practitioner and the nursing staff. In taking the history, specifically note the onset and course of confusion (to differentiate delirium from dementia), any prior episodes of confusion, symptoms suggesting an underlying cause such as infection, the patient's previous intellectual function such as ability to pay bills and take account of medication, pre-admission social circumstances, normal functional status and any comorbidities. Additionally, a full drug history including non-prescribed drugs and recent drug cessation, alcohol history, details of oral intake and bladder and bowel voiding is important.

Examination

All patients must have a full physical examination, especially noting their level of consciousness; nutritional status; evidence of infection or alcohol misuse or withdrawal; temperature; and oxygen saturations. They must all have a neurological examination and if constipation with impaction is suspected, a rectal examination. The British Geriatrics Society recommends that cognitive testing should be done for all elderly patients admitted to hospital, and serial measurements

Box 2: Criteria for diagnosis of delirium

To make a diagnosis of delirium, a patient must show each of the features listed:

1. Disturbance of consciousness (ie, reduced clarity of awareness of the environment) with reduced ability to focus, sustain or shift attention
2. Change in cognition (such as memory deficit, disorientation, language disturbance) or development of a perceptual disturbance that is not better accounted for by pre-existing or evolving dementia
3. The disturbance develops over a short period (usually hours to days) and tends to fluctuate during the course of the day
4. Evidence from history, physical examination, or laboratory findings that the disturbance is caused by the direct physiological consequences of a general medical condition, substance intoxication, or substance withdrawal.

A diagnosis of delirium can also be made when evidence is insufficient to support criterion four, if clinical presentation is consistent with delirium, and features can not be attributed to any other diagnosis, for example delirium due to sensory deprivation

in patients at risk may help detect the new development of delirium or its resolution.

Investigations

Investigations necessary in determining the cause of delirium are detailed in box 3. Routine CT head scans have been shown to be unhelpful;¹⁶ they should be reserved for patients with focal neurological signs, those with confusion developing after head injury or after a fall, and those with evidence of raised intracranial pressure. An electroencephalogram (EEG) generally shows a slowing of the posterior dominant rhythm and increased generalised slow-wave activity in patients with delirium. EEG may be useful for differentiating delirium from dementia or non-convulsive

status epilepticus and temporal-lobe epilepsy.

Management

Early identification of delirium and prompt treatment of the underlying cause may reduce the severity and duration of delirium.¹⁷ The key to management is identifying and treating the underlying cause. General measures are also vital, such as improving orientation with regular cues, clocks and calendars. Minimise sensory deprivation by ensuring spectacles and hearing aids are worn and are in good working order. Ensure lighting levels are appropriate for the time of day. Encourage mobility, and eliminate unexpected and irritating noise. Visits from family and friends should be encouraged

and good fluid and food intake is important.

As much as possible, avoid transferring patients between different beds or different wards, and avoid catheters and the use of physical restraints. An awareness of complications such as falls, pressure sores, infections, malnutrition and functional impairment is vital.

Patients may wander. If so, they need close observation and to be kept safe. Any possible cause for their agitation, such as pain, should be addressed. Sedatives should only be a final option with the main aim of treating distressed or dangerous behaviour. Use one drug only, starting at the lowest possible dose, increasing in increments after an interval of two hours if necessary, with close observation of the patient. Medication options include haloperidol 0.5mg orally or 1–2mg intramuscularly (max 5mg in 24 hours), or lorazepam 0.5–1mg orally or intramuscularly (max 3mg in 24 hours). These drugs should be reviewed every 24 hours with the aim of stopping them as soon as possible.

As explained before, dementia is an important predisposing factor for the development of delirium, and, additionally, delirium can be the presenting feature of dementia. With this in mind, such patients might benefit from input from the liaison psychiatry services, which have a valuable role in the prevention and management of delirium.

An important part of management is appropriate discharge planning. This should be done by a multidisciplinary

Box 3: Investigations to detect delirium

Blood tests (full blood count, C-reactive protein, urea and electrolytes, calcium, liver function, glucose, thyroid function, B12, folate)

ECG

Chest X-ray

Pulse oximetry

Urinalysis

Arterial blood gases*

Urine, sputum, or blood cultures*

CT of head*

Lumbar puncture (if meningitis suspected)*

EEG*

*Depending on findings on history and examination

team and must involve the patient and their family. Assessing the patient's cognitive function before discharge and arranging appropriate follow-up is useful.

Summary

Delirium is characterised by a disturbance in consciousness and cognition. It is very common in elderly patients admitted to hospital, and is more common in those with a pre-existing organic brain syndrome.

Delirium is an important marker of risk for dementia or death and is associated with increased admission to long-term care, longer lengths of hospital stay, and functional impairment. Multiple factors contribute to its development, and those at high risk can potentially be identified

on admission to hospital, with measures then put in place to reduce any possible precipitating factors.

The diagnosis of delirium is clinical; detailed history, examination and investigations aid in diagnosis and management. The key to management is identifying and treating the underlying cause, paying close attention to the environment the patient is nursed in, and only using sedatives to manage distressing or dangerous behaviour.

Liaison psychiatry services may provide valuable input in management. Good discharge planning is vital, and it should involve the multidisciplinary team, including the patient and their family.

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