

# Delirium and the elderly patient

Delirium is the term used to describe a state of fluctuating organic mental confusion, usually of abrupt onset and relatively short duration. It results in impaired attention and concentration, impaired consciousness, disordered perception, usually visual hallucinations as well as autonomic features such as sweating and tachycardia. **Professor Stephan Curran and Professor John Wattis** discuss the condition.

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**D**elirium (also known as acute confusional state) is common in physically ill old people, affecting up to 50 per cent of those acutely ill in hospital as well as up to 15 per cent of elderly patients post-operatively<sup>1</sup>. In selected groups, especially those with pre-existing dementia, the prevalence may rise to nearer 90 per cent. In nearly three out of four cases it is overlooked, particularly if the patient is more withdrawn than floridly disturbed. In the community, prevalence is uncertain but delirium is probably often overlooked.

There are predisposing and precipitating causes of delirium and several different factors often interact to produce the clinical picture. The presence of delirium generally adversely affects functional outcome including cognitive function. For hospitalised patients it increases length of stay and mortality after discharge. Early detection encourages good treatment. This is twofold: good nursing support based on an understanding of the patient's experience and effective treatment of the underlying causes. Occasionally, medication may be needed to manage disturbed behaviour and ensure safety but this should not be a first resort.

## Diagnosis

The criteria for the formal diagnosis of delirium in the International Classification of Diseases 10th Edition (ICD 10) are summarised in *Table 1*.

## Prevalence

Delirium is an elusive diagnosis. Because of its ephemeral nature its prevalence is hard to estimate. Acute hospital studies have found prevalence rates of 30–50 per cent, sometimes higher. One study, interestingly found that 31.3 per cent of patients admitted to a long-term care facility developed delirium after admission<sup>2</sup>. Community prevalence is likely to be similar amongst acutely ill old people. An ageing brain is probably a risk factor for delirium. In this article we deal with the experience, the impact, the detection and differential diagnosis, and the practical management of delirium.

## Aetiology

Delirium can result from a number of different causes but it is known to be associated particularly with increasing age and dementia. One possibility is that the blood brain barrier becomes more permeable with increasing age making older people more susceptible to the effects of circulating drugs and 'toxins'. It is also known that inhibition of cholinergic mechanisms is a potent inducer of delirium and patients with dementia already have impaired cholinergic transmitter functions. A range of conditions can act as predisposing, precipitating and perpetuating factors and these are summarised in *Table 2*.

These predisposing and precipitating factors should be considered in assessing the risk of any

**Table 1** ICD 10 criteria for the diagnosis of delirium

For a definite diagnosis, symptoms, mild or severe, should be present in each one of the following areas:

- > Impairment of consciousness and attention (on a continuum from clouding to coma; reduced ability to direct, focus, sustain, and shift attention)
- > Global disturbance of cognition (perceptual distortions, illusions and hallucinations – most often visual; impairment of abstract thinking and comprehension, with or without transient delusions, but typically with some degree of incoherence; impairment of immediate recall and of recent memory but with relatively intact remote memory; disorientation for time as well as, in more severe cases, for place and person)
- > Psychomotor disturbances (hypo- or hyperactivity and unpredictable shifts from one to the other; increased reaction time; increased or decreased flow of speech; enhanced startle reaction)
- > Disturbance of the sleep-wake cycle (insomnia or, in severe cases, total sleep loss or reversal of the sleep-wake cycle; daytime drowsiness; nocturnal worsening of symptoms; disturbing dreams or nightmares, which may continue as hallucinations after awakening)
- > Emotional disturbances, eg, depression, anxiety or fear, irritability, euphoria, apathy, or wondering perplexity. The onset is usually rapid, the course diurnally fluctuating, and the total duration of the condition less than six months. The above clinical picture is so characteristic that a fairly confident diagnosis of delirium can be made even if the underlying cause is not clearly established. In addition to a history of an underlying physical or brain disease, evidence of cerebral dysfunction (eg, an abnormal electroencephalogram, usually but not invariably showing a slowing of the background activity) may be required if the diagnosis is in doubt.

Includes:

- \* acute brain syndrome acute confusional state (nonalcoholic)
- \* acute infective psychosis
- \* acute organic reaction
- \* acute psycho-organic syndrome.

patient becoming delirious and in seeking the underlying cause of any delirious episode. The precipitating factors may become perpetuating factors if not found and dealt with appropriately.

### The patient's perspective

The closest most of us get to the experience of delirium is when we are dreaming. The normal rules of logical thought are suspended and we often feel as though we are trying to make sense of fragmented apparent perceptions. In delirium, the level of consciousness is lowered and varies often from minute to minute and hour to hour. Perception is impaired and patients lose a sense of the temporal relationships between events. Sometimes they experience hallucinations (mainly visual). In an attempt to make sense of this experience they may develop false beliefs, sometimes of delusional intensity. These may cause them to become less co-operative with treatment. If the patient is put through a series of ill-explained transitions (as often happens in admission to hospital) this only serves to increase confusion and reduce co-operation.

Delirious patients often feel anxious or afraid. They may become agitated, seek to escape from unfamiliar surroundings or even lash out at perceived threats. Understanding this experience is the key to good nursing and general management of patients with delirium.

### Detection

Practitioner awareness and alertness is the key. We should expect to find delirium in old people with acute illness, especially if they have pre-existing dementia. It should also be actively sought in older patients postoperatively, especially after emergency surgery (eg, for fractured neck of femur). Indeed, patients with dementia may become delirious with relatively minor physical problems like constipation. When you see an acutely ill old person, look for delirium. The key sign is a degree of confusion related to a variable level of consciousness. Sometimes this is evident even over a relatively brief interview, with the patient being able to retrieve memories at one point that later become inaccessible. Performance on tests of memory may also vary over a few minutes or hours. Doctors, nurses and others working with vulnerable old people need to detect delirium if management is to be optimised. For example there is little point leaving a prescription for an antibiotic with an old person living alone if delirium is going to cause them to forget to collect or take the medication.

The Confusion Assessment Method (CAM)<sup>3</sup> has been widely used in research and has been validated in Europe as a screening tool for delirium<sup>4</sup>. It is a simple algorithm with four questions. The diagnosis of delirium requires the presence of features one and two and either three or four (*Table 3*).

**Table 2** Predisposing and precipitating causes of delirium

- > Advanced age
- > Preexisting cognitive impairment
- > Infections: especially urine and respiratory
- > Hypoxia: eg, heart failure severe anaemia, carbon monoxide poisoning, chronic pulmonary disease,
- > Metabolic including dehydration, electrolyte disturbances, liver failure, severe acidosis/alkalosis, hypoglycaemia, thyrotoxicosis
- > Toxic, especially drugs with anticholinergic effects
- > Withdrawal syndromes especially alcohol and benzodiazepines
- > Nutritional deficiency including thiamine, nicotinic acid
- > Sensory deprivation: visual and auditory impairment
- > CNS brain trauma, space occupying lesions, ischaemia, neurodegenerative conditions, epilepsy
- > Other: eg, hypo- and hyperthermia, multiple organ systems failure.

These features reflect the diagnostic criteria in the American Diagnostic and Statistical Manual versions IIR and IV (DSM IV, 1994) and there is obvious overlap with the ICD 10 definition. The test has only moderate sensitivity and specificity, but if these questions were asked about every acutely ill older person they would undoubtedly lead to a higher rate of diagnosis of this often hidden condition.

### Differential diagnosis

There is a twofold task. One is the differential diagnosis of delirium from other conditions causing confusion. Here the main question is whether the confusion is of acute or acute on chronic onset. These patterns suggest respectively delirium, or delirium superimposed on dementia. Other psychiatric conditions such as schizophrenia, agitated depression and especially mania may result in disordered behaviour that superficially resembles delirium. In hospital or the community, expert help from old age mental health services may be needed to diagnose these cases. The other main task for the physician is the differential diagnosis of the underlying cause or causes. A detailed consideration of the second is beyond the scope of this article, remembering that a single clear cause cannot always be pinned down.

The differential diagnosis of delirium from other causes of confusion depends on the history, mental state and physical examination and sometimes on laboratory tests and other investigations. An informant history is invaluable as patients cannot give a coherent and accurate account of themselves. The first key question is 'how quickly has this confusion developed?' and the second whether there was any pre-existing mental disorder. Alzheimer's disease characteristically develops gradually and relatives often find it difficult to identify when the problem started. However, a sudden worsening in confusion

in a person with established Alzheimer's disease may be due to a superimposed delirium. Other conditions that come on relatively quickly and cause confusion include stroke (including some types of vascular dementia) and the fluctuating confusion found in subdural haematomas, dementia with Lewy bodies and other neurological conditions. Dementia with Lewy bodies is characterised by fluctuating levels of confusion, hallucinations and often extrapyramidal signs.

The next key question is: 'is the patient physically unwell?' Any acute physical illness automatically increases the likelihood of delirium. The final key question is 'could this be due to drugs, or drug withdrawal (including alcohol)?' Strong analgesics, particularly opiates, drugs with anticholinergic effects, drugs with sedative effects and alcohol and benzodiazepine withdrawal can all cause delirium.

The mental state examination includes careful observation of general appearance and behaviour, including fluctuating consciousness, attention and concentration and simple testing of memory. Repeated examinations, especially in hospital where these are more feasible, can help clear up cases of doubt and may enable documentation of fluctuations in cognitive function. Physical examination should focus on likely causes of acute confusion, particularly signs of the following:

- > Any acute infection
- > Heart failure
- > Focal neurological problems.

Investigations may be needed to confirm clinical diagnosis. They may also help where the clinical diagnosis is not clear. Plasma viscosity acts as a non-specific indicator of physical illness and a full blood count will often show an elevated white cell count, pointing to infection. Other investigations such as

**Table 3** The Confusion Assessment Method (CAM)

1. Acute onset and fluctuating course. This feature is assessed by asking an informant 'is there evidence of sudden change from the patient's previous mental state?' and 'did the abnormal behaviour tend to fluctuate (come and go, increase and decrease) through the day'
2. Inattention. (Also usually assessed by asking an informant.) 'Did the patient have difficulty focusing attention, were they easily distractable or did they have difficulty keeping track of the conversation or what was happening?'
3. Disorganised thinking. 'Was the patient's thinking disorganised, was their conversation rambling or incoherent, was there unpredictable switching from subject to subject?'
4. Altered level of consciousness. This feature is shown by any answer other than 'alert' to the question: 'Overall, how would you rate this patient's level of consciousness? (alert [normal], vigilant [hyperalert], lethargic [drowsy, easily aroused], stuporose [hard to arouse] or comatose [unarousable])?'

chest X-ray, electrocardiogram and culture and sensitivity on a urine sample may help with specific causes. CT or MRI scan of the head is justified if an intracranial cause is suspected.

### Practical management

The patient's personality and previous experience will affect how he or she copes with the experience of delirium. Some may slip easily into the 'patient role' and trustingly accept the help they are offered. Others may rant and rail against what seems to be happening to them. Rarely, someone who has previous bad experiences (for example in a wartime concentration camp) may try to make sense of present experience in the light of the past and become very paranoid. Understanding the patient as a person helps us deal appropriately with these issues.

The British Geriatrics Society has published guidelines on the prevention, diagnosis and management of delirium<sup>5</sup>. A number of general measures are recommended including providing environmental and personal orientation, ensuring continuity of care, encouraging mobility, maintaining good fluid intake and good liaison with old age psychiatry services. The need to identify and treat underlying causes and nursing in a good sensory environment are emphasised. The use of sedatives should be kept to a minimum, but when used one drug should be used and medication use should be reviewed every 24 hours.

### Acute management

The underlying physical illness must be properly treated and other symptoms such as pain or fever adequately controlled. Other physical needs must also be considered. The confused patient may not be able to clearly express his or her need to go to the toilet. Attempts to make themselves understood may be discounted by busy staff. Preventable incontinence may occur, followed by catheterisation, a traumatic procedure for someone who cannot fully understand what is going on. Delirious patients lose the capacity to regulate their own lives and so issues like hydration, diet and the taking of necessary medication must be addressed by carers.

### Medication

Some medication (eg, medication for incontinence and tricyclic antidepressants) causes or worsens confusion. Medication should be limited to what is strictly necessary to cope with current problems. In a patient with a history of severe depression or psychosis, antidepressant or antipsychotic medication will usually have to be continued. Sometimes, with expert help a product less likely to cause or worsen confusion may be selected. Medication to control disturbed behaviour in delirium is a last resort. In most cases good general management will make it unnecessary. Very small doses of haloperidol (0.5–1mg up to twice daily) may occasionally be helpful but higher doses can be dangerous.

Haloperidol can be given intramuscularly as well as orally but, because of first pass metabolism, is considerably but unpredictably more potent when given parenterally. Alternatives are restricted following recent advice from the Committee on the Safety of Medicines and the Federal Drugs Administration. Despite this there may be occasions when the short-term use of low dose atypical antipsychotics can be justified if the patient cannot tolerate the extrapyramidal effects of haloperidol.

Risperidone is probably the best researched drug but should only be used short-term with caution in view of occasional precipitation of hypotensive episodes. This is especially relevant in those with cerebrovascular disease. Antipsychotics may help the symptoms but in doing so may mask the underlying physical disease, creating a false sense of security.

### Prevention

There is not a strong evidence base for prevention.

## References

1. Leentjens AFG, van der Mast RC. Delirium in Elderly people: An Update. *Current Opinion in Psychiatry*, 2005; **18**(3): 325–30
2. Levkoff SE, Evans DA, Liptzin B, et al. Delirium: The occurrence and persistence of symptoms among elderly hospitalised patients. *Archives of Internal Medicine*, 1992; **152**: 334–40
3. Inouye SK, van Dyck CH, Alessi CA, et al. Clarifying confusion: The Confusion Assessment Method. A new method for the detection of delirium. *Annals of Internal Medicine* 1990; **113**: 942–48
4. Laurila JV, Pitkala KH, Strandberg TE, Tilvis RS. Confusion Assessment Method in the diagnostics of delirium among aged hospital patients: Would it serve better in screening than as a diagnostic instrument? *International Journal of Geriatric Psychiatry* 2002; **17**: 1112–19
5. British Geriatrics Society (2006) Guidelines for the prevention, diagnosis and management of delirium in older people in hospital. www.bgs.org.uk
6. Wattis J, Curran S. Practical Psychiatry of Old Age (4th edition). Oxford, Radcliffe Publishing, 2006
7. Cole MG, Primeau FJ. Prognosis of delirium in elderly hospitalised patients. *Canadian Medical Association Journal* 1993; **149**: 41–4.

Nevertheless, it seems reasonable to screen patients attending for elective major surgery for risk factors for delirium, at least in order to deal with any correctable problems and to increase awareness of the possibility of postoperative delirium in the individual patient. It makes sense to take an accurate alcohol and drug history and to assess for dehydration in the acutely ill patient. A badly managed admission to hospital can often worsen confusion. In considering how best to manage somebody with delirium we need to take into account the environment, any sensory disabilities, the patient's physical health needs and any needs related to brain dysfunction, personality and previous experience<sup>6</sup>. We also need to consider medication.

If the underlying physical illness is relatively mild and the patient is well supported at home, then this is the ideal place to treat them. Familiar surroundings and people reduce the risk of worsening confusion. If extra help has to be brought in to care for the patient, carers should be aware that the patient may have difficulty accepting strangers at home and efforts should be made to ensure a familiar person is present to explain to the patient (repeatedly if necessary) what is going on.

If, because of the severity of the underlying illness or lack of support at home, the patient has to be admitted to an intermediate care facility or to hospital, then every effort should be made to manage that transition well. A familiar person should travel with the patient if possible and repeated explanation should be given about what is happening. The patient should not be left alone (especially for long periods in the A&E department). The number of different

## Key points

- > Delirium is often undetected.
- > A careful assessment and differential diagnosis is essential.
- > The CAM screening tool can help to increase medical awareness and find cases.
- > Treatment of underlying causes should be combined with a safe and supportive environment.
- > Antipsychotic medication is a last resort and should be used with great caution.

staff dealing with the patient should be kept to a minimum. All should treat the patient with respect and remember that it may be necessary to repeat information and to make allowance for sensory impairment.

Impaired vision and hearing can reduce the patient's capacity to take in information and to adjust to new environments. Special care should be taken to ensure that explanations are heard and, as far as possible, understood by the patient. Any necessary hearing aids or spectacles should be provided and ambient lighting should be good to improve patients' chances of orientating themselves.

## Prognosis

Delirium is important to detect and treat. Untreated, the mortality is nearly 15 per cent (14.2 per cent versus 4.8 per cent in controls) and this rises to 20.7 per cent (10.6 per cent in controls) after six months. Untreated, it also significantly increases the length of stay in hospital (20.7 versus 8.9 days)<sup>7</sup>.

## Conclusion

Delirium should be sought as a possible diagnosis whenever there is sudden onset of confusion or indeed in any old person with an acute illness. When present, it must be managed by careful attention to the patient's need for a safe and supportive environment, good communication, attention to the underlying illness (or other cause) and to physical needs.

Understanding the patient as an individual and attempting to understand the experiences they are going through informs good general management. Medication regimens should be kept simple and antipsychotic medication such as haloperidol used only as a last resort.

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