

The prevention, diagnosis and management of delirium in older people: concise guidelines

Jonathan Potter and Jim George, on behalf of a multidisciplinary Guideline Development Group convened by the British Geriatrics Society in conjunction with the Royal College of Physicians*

ABSTRACT – Delirium (acute confusional state) is a common condition in older people, affecting up to 30% of all older patients admitted to hospital. Patients who develop delirium have high mortality, institutionalisation and complication rates, and have longer lengths of stay than non-delirious patients. Delirium is often not recognised by clinicians, and is often poorly managed. Delirium may be prevented in up to a third of older patients. The aim of this guideline update is to aid prevention as well as the recognition of delirium and to provide guidance on how to manage these complex and disadvantaged patients.

KEY WORDS: acute confusion, clinical guideline, delirium, older people

Introduction

The aim of these guidelines is to aid recognition of delirium and to provide guidance on how to manage this complex and challenging condition.

Delirium is characterised by a disturbance of consciousness and a change in cognition that develop over a short period of time. The disorder has a tendency to fluctuate during the course of the day, and there is evidence from the history, examination or investigations that the delirium is a direct consequence of a general medical condition, drug withdrawal or intoxication.

Diagnostic and Statistical Manual of Mental Disorders (DSM IV)¹

In order to be diagnosed with delirium, a patient must show all of the four features listed below.

- 1 A disturbance of consciousness (ie reduced clarity of awareness of the environment) is evident, with reduced ability to focus, sustain or shift attention.
- 2 There is a change in cognition (such as memory deficit, disorientation, language disturbance) or the development of a perceptual disturbance

* For membership of the Guideline Development Group, see end of paper.

that is not better accounted for by a pre-existing or evolving dementia.

- 3 The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day.
- 4 There is evidence from the 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.¹

Delirium may have more than one causal factor (ie multiple aetiologies). A diagnosis of delirium can also be made when there is insufficient evidence to support criterion 4, if the clinical presentation is consistent with delirium, and the clinical features cannot be attributed to any other diagnosis, for example delirium due to sensory deprivation.

Some older people come to hospital with delirium (prevalent) while others develop delirium during their hospital stay (incident). Hospital prevalence rates for delirium vary widely because of different patient characteristics in the different studies – the highest rates are seen in older patients in critical care settings. The average prevalence of delirium in older people in general hospitals is 20% (range 7% to 61%).² After fracture of the neck of the femur, the prevalence varies from 10% to 50%.

Patients with delirium have increased length of stay, increased mortality and increased risk of institutional placement. Hospital mortality rates of patients with delirium range from 6% to 18% and are twice that of matched controls. Patients with delirium are also three times more likely to develop dementia. Delirium appears to be an important marker of risk for dementia or death, even in older people without prior cognitive or functional impairment.

Prevention

Up to a third of delirium is preventable.^{3,4} Early attention to possible precipitants of delirium and adopting the approaches detailed under 'Management of confusion' below in those patients at increased risk of

Jonathan Potter
DM FRCP,
Consultant
Geriatrician, Kent
and Canterbury
Hospital,
Canterbury;
Programme
Director, Health
Care of Older
People, Clinical
Effectiveness and
Evaluation Unit,
Royal College of
Physicians

Jim George FRCP,
Consultant
Geriatrician,
Cumberland
Infirmary, Carlisle

Concise Guidance
to Good Practice
Series Editor:
**Professor Lynne
Turner-Stokes**
FRCP

Clin Med
2006;6:303–8

delirium may prevent the development of delirium and improve the outcome in those who go on to develop it.⁴ Delirium is more common in those with a pre-existing organic brain syndrome or dementia, and may co-exist with disorders such as depression, which are also common in older people. Patients with dementia are five times more likely to develop delirium.² Risk factors for the development of delirium are shown in Table 1.

Assessment

An initial assessment of the cognitive function of all patients should be made and recorded. When confusion is suspected the use of cognitive screening tools (such as the Abbreviated Mental Test (AMT) score⁵ and Mini-Mental State Examination (MMSE)⁶) may increase recognition of delirium present on admission. However, by themselves these tools cannot distinguish between delirium and other causes of cognitive impairment.

Delirium is frequently a complication of dementia. Care is needed therefore to distinguish between the two. The most helpful factor is an account of the patient's pre-admission state from a relative or carer. Use of the Confusion Assessment Method (CAM)⁷ or serial measurements of cognition can help to differentiate delirium from dementia or detect its onset during a hospital admission.⁸

Delirium can be subdivided into hypoactive, hyperactive and mixed subtypes. It is important to recognise that hypo-

active (quiet) delirium is the commonest type. Health staff should always be alert to the possibility of confusion when communicating with patients.

- Hyperactive delirium is characterised by increased motor activity with agitation, hallucinations and inappropriate behaviour.
- Hypoactive delirium in contrast is characterised by reduced motor activity and lethargy and has a poorer prognosis.
- Delirium may be unrecognised by doctors and nurses in up to two-thirds of cases.⁹

The underlying cause of delirium is often multi-factorial.¹⁰ Common contributory medical causes of delirium are shown in Table 2.

The history, examination and investigations should be directed to assessing these causes.

Management

The most important action for the management of delirium is the identification and treatment of the underlying cause.

At the same time as treating the underlying cause, management should also be directed at the relief of the symptoms of delirium and supportive care until recovery occurs.

Environment

The patient should be nursed in a good sensory environment and with a reality orientation approach, and with involvement of the multidisciplinary team.^{3,4,11–13}

Ensure:

- appropriate lighting levels for time of day
- regular and repeated (at least three times daily) cues to improve personal orientation
- use of clocks and calendars to improve orientation
- hearing aids and spectacles available as appropriate and in good working order
- continuity of care from nursing staff
- encouragement of mobility and engagement in activities and with other people
- patient is approached and handled gently
- elimination of unexpected and irritating noise (eg pump alarms)
- regular analgesia, for example regular paracetamol
- encouragement of visits from family and friends who may be able to help calm the patient
- explanation of the cause of the confusion to relatives. Encourage family to bring in familiar objects and pictures from home and participate in rehabilitation
- fluid intake to prevent dehydration (use subcutaneous fluids if necessary)
- good diet, fluid intake and mobility to prevent constipation
- adequate CNS oxygen delivery (use supplemental oxygen to keep saturation above 95%)

Table 1. Risk factors for developing delirium.

Old age	Visual impairment
Severe illness	Polypharmacy
Dementia	Surgery, eg fracture neck of femur
Physical frailty	Alcohol excess
Admission with infection or dehydration	Renal impairment

Table 2. Causes of delirium.

Infection (eg pneumonia, urinary tract infection)
Cardiological illness (eg myocardial infarction, heart failure)
Respiratory disorder (eg pulmonary embolus, hypoxia)
Electrolyte imbalance (eg dehydration, renal failure, hyponatraemia)
Endocrine and metabolic disorder (eg cachexia, thiamine deficiency, thyroid dysfunction)
Drugs (particularly those with anticholinergic side effects, eg tricyclic antidepressants, anti-Parkinsonian drugs, opiates, analgesics, steroids)
Drug (especially benzodiazepine) and alcohol withdrawal
Urinary retention
Faecal impaction
Severe pain
Neurological problem (eg stroke, subdural haematoma, epilepsy, encephalitis)
Multiple contributing causes

- good sleep pattern (use milky drinks at bedtime, exercise during the day).

Avoid:

- inter- and intra-ward transfers
- use of physical restraint
- constipation
- anticholinergic drugs where possible and keep drug treatment to a minimum
- catheters where possible.

Sedation

The use of sedatives and major tranquillisers should be kept to a minimum. All sedatives may cause delirium, especially those with anticholinergic side effects. Many older patients with delirium have hypoactive delirium (quiet delirium) and do not require sedation. Early identification of delirium and prompt treatment of the underlying cause may reduce the severity and duration of delirium.¹¹ The main aim of drug treatment is to treat distressing or dangerous behavioural disturbance (eg agitation and hallucinations).

Drug sedation may be necessary in the following circumstances:

- in order to carry out essential investigations or treatment
- to prevent patients endangering themselves or others
- to relieve distress in a highly agitated or hallucinating patient.

It is preferable to use one drug only, starting at the lowest possible dose and increasing in increments if necessary after an interval of two hours. All medication should be reviewed at least every 24 hours.

The preferred drug is haloperidol^{14,15} 0.5 mg orally which can be given up to two hourly. A maximum dosage of 5 mg (orally or IM) in 24 hours is a general guide but may need to be exceeded depending on the severity of distress, severity of the psychotic symptoms, weight and sex. Haloperidol can be given IM, 1–2 mg. An alternative in patients with dementia with Lewy bodies and those with Parkinson's disease is lorazepam 0.5–1 mg orally which can be given up to two hourly (maximum 3 mg in 24 hours). If necessary, lorazepam can be given 0.5–1.0 mg IV or IM (dilute up to 2 ml with normal saline or water) up to a maximum of 3 mg in 24 hours.

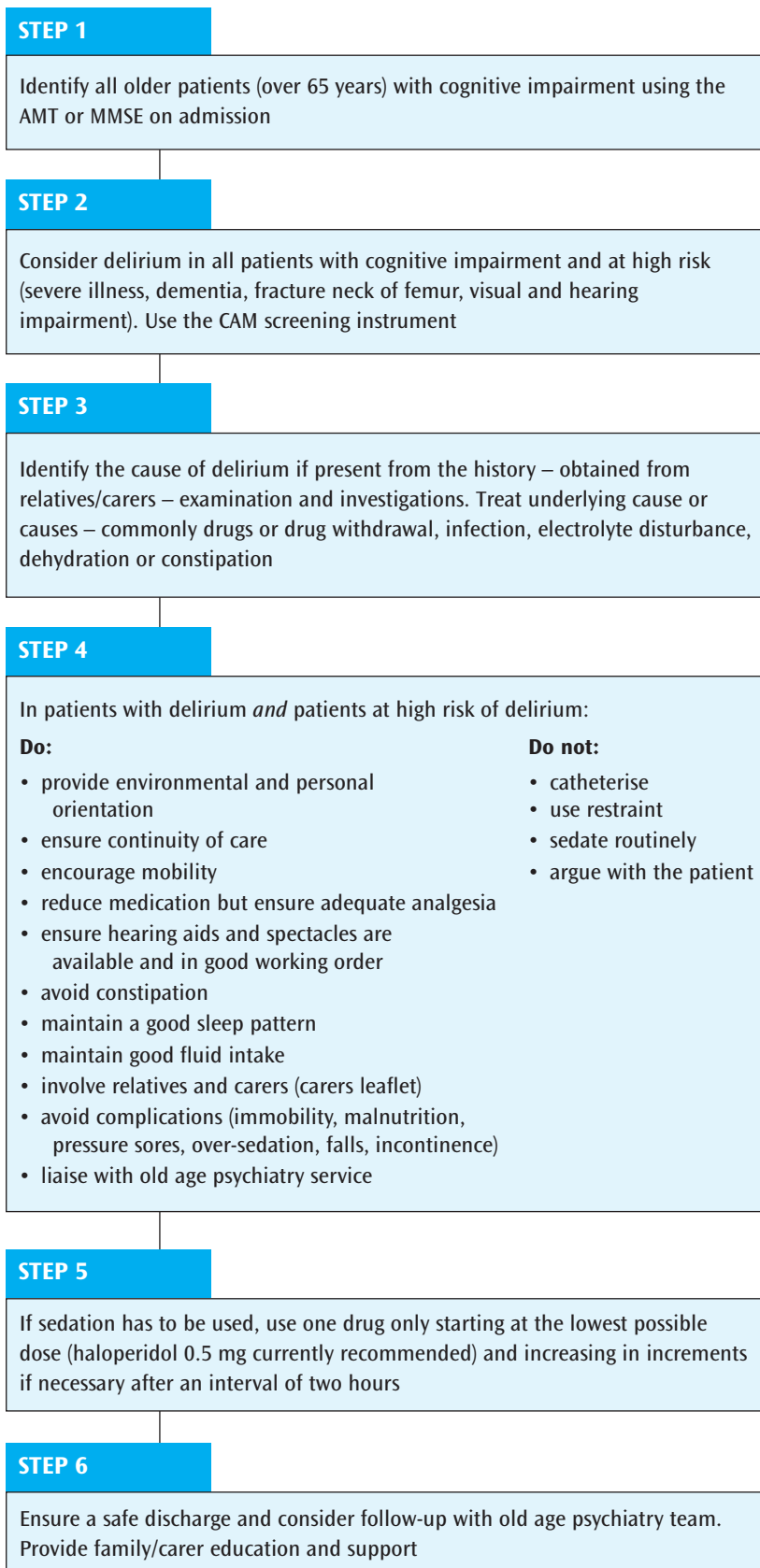
One-to-one care of the patient is often required and should be provided while the

Summary of the guidelines

Recommendation	Grade
1 Aids to diagnosis	
Cognitive testing should be carried out on all older patients admitted to hospital. ^{8,9}	C
Serial measurements in patients at risk help detect the new development of delirium or its resolution. ^{6,8}	B
A history from a relative or carer of the onset and course of the confusion is essential to distinguish between delirium and dementia. ^{9,11}	C
The diagnosis of delirium can be made by non-psychiatrically trained clinicians quickly and accurately using the CAM screening instrument. ^{7,16,17}	B
2 Prevention	
Patients at high risk should be identified at admission and prevention strategies incorporated into their care plan. ^{3,4,18}	A
3 History	
Many patients with delirium are unable to provide an accurate history. Wherever possible, corroboration should be sought from the carer, general practitioner or any source with good knowledge of them. ⁹	C
4 Management	
The most important action for the management of delirium is the identification and treatment of the underlying cause. ^{10,13}	C
The patient should be nursed in a good sensory environment and with a reality orientation approach, and with involvement of the multidisciplinary team. ¹²	C
Keep the use of sedatives and major tranquillisers to a minimum. ¹³	C
Use one drug only – haloperidol is currently recommended – starting at the lowest possible dose and increasing in increments if necessary after an interval of two hours. ^{14,15}	D
Review all medication at least every 24 hours. ¹⁵	D
One-to-one care of the patient is often required and should be provided while the dose of psychotropic medication is titrated upward in a controlled and safe manner. ¹⁵	D
5 Staff training, education audit	
Senior doctors and nurses should ensure that doctors in training and nurses are able to recognise and treat delirium. ^{13,19}	C
Regular audit should be undertaken to assess the processes and outcomes of care of patients with delirium eg use of cognitive scores, ward moves, length of stay, complications and mortality.	GPP
The results of audit should be used as feedback on the performance of doctors and nurses in order to target educational programmes.	GPP

CAM = Confusion Assessment Method; GPP = Good Practice Point.

Fig 1. Steps in the prevention, diagnosis and management of delirium.
 AMT = Abbreviated Mental Test; CAM = Confusion Assessment Method;
 MMSE = Mini-Mental State Examination.



dose of psychotropic medication is titrated upward in a controlled and safe manner.

Sedation should only be used in situations as indicated above and should not be used as a form of restraint. If sedatives are prescribed, the prescription should be reviewed regularly and discontinued as soon as possible. The aim should be to tail off any sedation after 24–48 hours.

Prevention of complications

Care must be taken to avoid complications which include:

- falls
- pressure sores
- nosocomial infections
- functional impairment
- continence problems
- over-sedation
- malnutrition.

Implications and implementation

Consideration must be given to ensuring the following:

- At-risk patients (eg older people with hip fracture) are identified and preventive measures employed.
- Staff have the knowledge to recognise and manage older people at risk of or who have developed delirium.
- The environment is suitable to manage delirium.
- Sufficient staff are available to manage delirium. One-to-one nursing will frequently be necessary and there should be no barriers to obtaining staff at short notice if required.
- Close working relations with old age psychiatry services are established so that staff in acute hospitals have support and training in managing delirium.

Recommendations for an effective service are available in *Who cares wins* by the Royal College of Psychiatrists.²

Membership of the Guideline Development Group

Ms Heide Baldwin (Nursing), Royal College of Nursing; Ms Marsha Boyes (Patient Representative), Age Concern; Dr Jim George

(Geriatrician), British Geriatrics Society; Dr Duncan Forsyth (Geriatrician), British Geriatrics Society; Dr John Holmes (Old Age Psychiatry), Royal College of Psychiatrists; Ms Penny Irwin (Nursing, Guideline and Audit Development), Clinical Effectiveness and Evaluation Unit, Royal College of Physicians, London; Dr Jonathan Potter (Geriatrician),

Clinical Practice and Evaluation Committee, British Geriatrics Society; Ms Karen Reid (Information Scientist), Library Information Services, Royal College of Physicians, London; Ms Clare Wai (Liaison Mental Health Nurse), Royal College of Nursing; Dr Lesley Young (Geriatrician), British Geriatrics Society.

Guideline development process.

Scope and purpose

The scope	The scope of the current guidelines was the prevention, diagnosis and treatment of delirium in older people in hospital.
Overall objective of the guidelines	To update the <i>Guidelines for the diagnosis and management of delirium in the elderly</i> (1997) compiled by Dr Lesley Young and Dr Jim George based on the work of the multidisciplinary working party on Confusion in Crises, Royal College of Physicians, 1995.
The patient group covered	Older people admitted to hospital.
Target audience	Hospital doctors, nurses and allied health professionals, care assistants, commissioners of services, relatives and carers.
Clinical areas covered	Screening, prevention, assessment, treatment of the underlying cause, environmental management, guidance on the use of sedation. While the scope was restricted to hospital patients, the guidelines are relevant to older people with delirium in intermediate and community care settings.

Stakeholder involvement

The Guideline Development Group (GDG)	A multidisciplinary working party was convened by the Cerebral Ageing Special Interest Section of the British Geriatrics Society including representatives from: <ul style="list-style-type: none"> • Age Concern • British Geriatrics Society • Royal College of Nursing • Royal College of Physicians • Royal College of Psychiatrists
Funding	Funding to support the project came from the British Geriatrics Society. The Royal College of Physicians (RCP) provided technical assistance through the Information Centre on a gratis basis as a pilot project.
Conflicts of interest	Members of the GDG were requested to declare conflicts of interest. None arose.

Rigour of development

Method of guideline development	The British Geriatric Society has adopted the AGREE methodology for guideline development (www.agreecollaboration.org)
Evidence gathering	The following databases were searched: Medline, Embase, Cochrane Library, PsychINFO, BNI, HMIC, CINAHL. Articles from 1997 to 2005 were identified to update the guidelines.
Review process and grading of recommendations	Dr Jim George and Dr John Holmes appraised the literature. All abstracts were reviewed. Abstracts were excluded if they related to letters, case reports, editorials, palliative care or to the paediatric literature. Grading of evidence during literature appraisal and grading of recommendations in the guidelines has followed the principles used by the Scottish Intercollegiate Guideline Network (SIGN) at www.sign.ac.uk/guidelines/fulltext/50/section6.html Where there was no evidence base, consensus was agreed by the GDG and ratified by the expert panel. The Information Centre at the RCP holds a database of the literature identified and the papers appraised.
Piloting and peer review	The guidelines were sent to a multi-professional panel of clinicians for peer review. The guidelines were ratified by the British Geriatrics Society Policy Committee and Clinical Effectiveness Committee.

Implementation

Methods of implementation	The guidelines will be made available to hospital clinicians through the publications department of the RCP and will be posted on the RCP and British Geriatrics Society Guidelines websites. The guidelines include guidance on assessment tools for the identification and monitoring of delirium.
Barriers to implementation	The major barrier to the implementation of the guidelines is the provision of the appropriate environment and staffing levels to provide the care required in acute hospital settings.
Plan for review	Review is planned for 2014.

References

- 1 American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*, 4th edn. Washington, D.C.: American Psychiatric Association, 1994.
- 2 Royal College of Psychiatrists. *Who cares wins: improving the outcome for older people admitted to the general hospital*. Report of a working group for the Faculty of Old Age Psychiatry. London: Royal College of Psychiatrists, 2005.
- 3 Inouye SK, Bogardus ST Jr, Charpentier PA *et al*. A multicomponent intervention to prevent delirium in hospitalized older patients. *N Engl J Med* 1999;340:669–76.
- 4 Marcantonio ER, Flacker JM, Wright RJ, Resnick NM. Reducing delirium after hip fracture: a randomized trial. *J Am Geriatr Soc* 2001;49:516–22.
- 5 Jitapunkul S, Pillay I, Ebrahim S. The abbreviated mental test: its use and validity. *Age Ageing* 1991;20:332–6.
- 6 Anthony JC, LeResche L, Niaz U, Von Korff MR, Folstein MF. Limits of the 'Mini-Mental State' as a screening test for dementia and delirium among hospital patients. *Psychol Med* 1982;12:397–408.
- 7 Inouye SK, van Dyck CH, Alessi CA *et al*. Clarifying confusion: the confusion assessment method. A new method for detection of delirium. *Ann Intern Med* 1990;113: 941–8.
- 8 O'Keefe ST, Mulkerrin EC, Nayeem K, Varughese M, Pillay I. Use of serial Mini-Mental State Examinations to diagnose and monitor delirium in elderly hospital patients. *J Am Geriatr Soc* 2005;53:867–70.
- 9 Foreman M, Milisen K. Improving recognition of delirium in the elderly. *Primary Psychiatry* 2004;11:46–50.
- 10 George J, Bleasdale S, Singleton SJ. Causes and prognosis of delirium in elderly patients admitted to a district general hospital. *Age Ageing* 1997;26:423–7.
- 11 Lundstrom M, Edlund A, Karlsson S *et al*. A multifactorial intervention program reduces the duration of delirium, length of hospitalization, and mortality in delirious patients. *J Am Geriatr Soc* 2005;53:622–8.
- 12 McCusker J, Cole M, Abrahamowicz M *et al*. Environmental risk factors for delirium in hospitalized older people. *J Am Geriatr Soc* 2001;49: 1327–34.
- 13 Naughton BJ, Saltzman S, Ramadan F *et al*. A multifactorial intervention to reduce the prevalence of delirium and shorten hospital length of stay. *J Am Geriatr Soc* 2005;53:18–23.
- 14 Breitbart W, Marotta R, Platt MM *et al*. A double-blind trial of haloperidol, chlorpromazine and lorazepam in the treatment of delirium in hospitalized AIDS patients. *Am J Psychiatry* 1996;153:231–7.
- 15 American Psychiatric Association. *Practice guideline for the treatment of patients with delirium*. Washington, DC: American Psychiatric Association, 1999.
- 16 Rolfson DB, McElhane JE, Jhangri GS, Rockwood K. Validity of the confusion assessment method in detecting postoperative delirium in the elderly. *Int Psychogeriatr* 1999;11:431–8.
- 17 Adamis D, Treloar A, MacDonald AJ, Martin FC. Concurrent validity of two instruments (the Confusion Assessment Method and the Delirium Rating Scale) in the detection of delirium among older medical inpatients. *Age Ageing* 2005;34:72–5.
- 18 Milisen K, Lemiengre J, Braes T, Foreman MD. Multicomponent intervention strategies for managing delirium in hospitalized older people: systematic review. *J Adv Nurs* 2005;52:79–90.
- 19 Tabet N, Hudson S, Sweeney V *et al*. An educational intervention can prevent delirium on acute medical wards. *Age Ageing* 2005;34:152–6.