# Approach to the Elderly Patient with Delirium: Nursing Perspective

9

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Delirium is a neglected condition relative to its frequency and serious consequences. Delirium is a serious, common, and potentially preventable source of morbidity and mortality in older patients. Delirium is defined as an acute fluctuating change in mental state, with consciousness and cognitive impairment. It is highly prevalent, costly, and a global problem in older adults (Steis and Fick 2007). It has a high incidence, as well as being associated with increased morbidity and mortality and prolonged stays in the intensive care unit (ICU) and in hospital. Delirium has been found to be an independent predictor of increased mortality and morbidity and increased hospital stay (Luetz et al. 2010; Ouimet et al. 2007). It is a common complication of hospitalization. Studies estimate the prevalence of delirium in hospitalized patients to be 14% to 56% and up to 70% in critically ill elderly patients (Leslie et al. 2008; McNicoll et al. 2003). Delirious patients are more likely to be discharged to a nursing home and have increased hospital mortality and longer lengths of stay (Salluh et al. 2010). Long-term effects of delirium include cognitive impairment and increased likelihood of developing or worsening dementia. Fong stated that approximately one in eight hospitalized patients with AD who develop delirium will have at least one adverse outcome, including death, institutionalization, or cognitive decline, associated with delirium (Fong et al. 2012).

Elders in whom delirium goes unrecognized have a higher 6-month mortality (Kakuma et al. 2003). In the elderly patients admitted to long-term care facilities, it was found that delirium can affect functional outcomes and that the longer the episode of delirium, the worse the functional outcome (Marcantonio et al. 2003). Clinicians often think of delirium as a transient disorder that has no permanent effect on cognition, but there is evidence to suggest that elders who become delirious will have a permanent cognitive decline because of their delirious episode. It is

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often thought that delirium is reversible when its underlying causes are treated but It has been shown that a significant number of delirious older adults never return to their baseline cognitive state, particularly in the presence of preexisting dementia (Rigney 2006).

Although most articles have focused on the hospitalized elder, it is important to recognize that delirium occurs outside the acute care setting as well. Several authors have discovered an alarmingly high percentage of patients discharged from the hospital in a delirious state. In older patients admitted to a home case service, 46% were delirious, and an astonishing 50% of those patients were discharged from an acute care facility to a home in which they lived alone. There are disappointingly few studies of delirium beyond hospitalization, including delirium in the long-term care setting or home setting (Rigney 2006). Despite its clinical importance, association with increased morbidity, mortality, and health services utilization remains underrecognized, misdiagnosed as dementia or other psychiatric illnesses, and undertreated (Michaud et al. 2007).

Delirium is not easy to detect, since its diagnosis is mainly clinical. To improve patient's prognosis, importance of early diagnosis and possible prevention in the different clinical scenarios is clear. A better understanding of risk factors and causes of delirium should enable nurses to focus on patients at risk. Delirium may then be avoided through meticulous assessment and early recognition of delirium symptoms. Although many cases of delirium may be unavoidable, clinical trials provide compelling evidence that at least 30–40% of cases may be preventable. Many aspects of hospital care contribute to the development of delirium, including adverse effects of medications, complications of invasive procedures, immobilization, malnutrition, dehydration, the use of bladder catheters, and sleep deprivation (Michaud et al. 2007).

Delirium is currently included as a marker of the quality of care and patient safety by the National Quality Measures Clearinghouse of the Agency for Healthcare Research and Quality (as explained at http://www.qualitymeasures.ahrq.gov/). Higher delirium rates would be expected to correlate with lower quality of hospital care. Delirium has ranked among the top three conditions for which the quality of care needs to be improved (Sloss et al. 2000).

Veteran Affairs Delirium Working Group discussed on strategies for facilitating recognition of delirium. They stated that mental status should be considered as sixth vital sign. The working group identified seven justifications for promoting mental status as "the sixth vital sign" (Flaherty et al. 2007):

1. The brain is as sensitive and vital organ as the immune (temperature), cardiac (pulse, blood pressure), and respiratory systems (respiratory rate) for heralding that something is amiss.
2. Delirium is a common, morbid, and costly condition.
3. Healthcare professionals frequently fail to evaluate mental status, and unrecognized delirium is one example of this.
4. Communication about mental status across sites of care would improve.

5. Widespread adoption would compel clinicians to become more diligent in their evaluation of the mental status as it relates to delirium and may lead to wider use of valid and reliable instruments used to evaluate patients for delirium.
6. The morbidity associated with delirium and its underlying causes is best mitigated by early intervention.
7. The elevation of mental status assessment and care to a quality measure will be facilitated.

## 9.1 Nursing Care

Delirium (as one of the "geriatric giants"), or more precisely the prevention, early recognition, and accurate treatment of delirium, is and will continue to be of major importance in the rapidly enlarging global population of hospitalized older people. Delirium is of particular interest to the nurse. Nurses have multiple contacts with patients and therefore are in a unique position to observe changes in mental status at an early stage. Although related, the concepts of nurse knowledge of delirium, nurse recognition of delirium, and nurses' assessment and documentation of delirium in older adults are different (Steis and Fick 2007). Because of its fluctuating nature and variety of presentations, however, recognition of delirium can be difficult. Nurses must be able to recognize delirium so that the underlying etiology can be discovered and treatment can begin. Unfortunately, many cases of delirium go undiagnosed (Chan and Brennan 1999). Studies suggest nurses are missing key symptoms of delirium and performing only superficial mental status assessments. Reporting rates of nurse recognition ranging from 26 to 83% compared nurses' assessments with a standardized mental status examination and found that 72% of patients with a cognitive deficit went undetected (Steis and Fick 2007). Eden and Foreman (1996) reported that lack of knowledge about assessment methods in detecting delirium and lack of communication among nursing staff were two factors in the underrecognition of delirium. Other risk factors for underrecognition by nurses include hypoactive delirium, that is, a delirium characterized by lethargy, apathy, and withdrawal; vision impairment; and preexisting dementia. Underrecognition of delirium in the elderly is by no means unique to nursing.

If nurses have not been explicitly taught the nuances of how delirium is manifested in older adults, they cannot be expected to readily recognize it at the bedside. For nurses to recognize delirium, they need time with patients, knowledge of the key features of delirium, use of an objective instrument to guide assessment and documentation, and the support of leadership within the organization (Steis and Fick 2007).

Multicomponent interventions to prevent delirium are the most effective and should be implemented through synergistic cooperation between the various healthcare disciplines. Nurses should play a pivotal role in this, as shown by most of the intervention studies (both prevention and early recognition and treatment) (Milisen et al. 2005).

### 9.1.1 Assessment of Risk Factors

Nurses play a key role in identification of delirium using valid and reliable tools and identifying modifiable risks to improve the delirious patient's outcome. If nurses lack of a sufficient understanding of delirium symptoms delirium remans underdiagnosed (Schreier 2010). Nurses are in a unique position to improve patients' quality of care and outcomes by early recognition of delirium, determining the likely causes and providing knowledgeable care. It is recommended that due to the fluctuating nature of delirium, nurses incorporate screening into patient care at least once every 8–12 h (Van den Boogaard et al. 2009).

### 9.1.2 Assessment Measures

The availability of a valid assessment instrument is a key component of any strategy to detect delirium. Numerous assessment tools have been adapted for use, and several studies have evaluated the validity and reliability of such tools. A lack of understanding and use of assessment instrumentation reduce definitive care of the delirious older adult. Therefore, the use of assessment tools is vital to effective care of older adults.

#### 9.1.2.1 Confusion Assessment Method (CAM)

It was developed based on the *Diagnostic and Statistical Manual of Mental Disorders* DSM-IV diagnostic criteria (http://www.terapiacognitiva.eu/dwl/dsm5/DSM-IV.pdf). The following elements of mental status are captured by the CAM: level of consciousness, orientation, attention or concentration, recall impairment, language, onset of symptoms, variability of symptoms, perceptual disturbances, sleep-wake disturbance, and changes in psychomotor behavior. The patient is diagnosed with delirium when the nurse identifies that the patient has an acute onset and exhibits inattention as well as either disoriented thinking or disorientation. The CAM has been used in a variety of settings, including long-term care (Inouye et al. 1999).

#### 9.1.2.2 Confusion Assessment Tool for Intensive Care Unit (CAM-ICU)

The CAM-ICU was developed based on psychiatric expert and delirium definitions of the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (http://www.terapiacognitiva.eu/dwl/dsm5/DSM-III.pdf), to assess delirium by nonpsychiatrists. The CAM has proven to be easy to use, reliable, and valid; it was first used in the early 1990s. The CAM addresses the following four features: (a) an acute onset of mental status change or fluctuating course, (b) inattention, (c) disorganized thinking, and (d) altered level of consciousness. The CAM had limited utility in the ICU because of the inability for use in patients who were nonverbal and/or who received mechanical ventilation. The CAM-ICU modified the validated CAM for use in those patients by using nonverbal, objective instruments. To be diagnosed as delirious (CAM-ICU positive), the participant must display features 1 and 2 and either 3 or 4. The advantages of CAM-ICU include a short time for scoring (2–5 min per patient)

and its high reliability. The most important contribution of the CAM-ICU is that it does not depend on the patient being able to talk verbally to assess the delirium. Thus, the CAM-ICU has the advantages in use for those patients who cannot express himself or herself with endotracheal tubes. But the CAM-ICU needs a short visual or auditory test, and this made it difficult to use. By contrast, those instruments that depend on symptom and sign score could be popular. In addition, CAM-ICU was a point-in-time assessment, and therefore, because of the fluctuating nature of delirium, it is hard to monitor the continuous situation of patients (Ely et al. 2001).

#### 9.1.2.3 The Neelon-Champagne Confusion Assessment Scale (NEECHAM)

It is designed specifically for nurses to assess the risk of confusion through bedside observation. The instrument includes all of the elements of the CAM (cognitive and behavioral components) as well as physiologic measures (appearance, vital sign stability, oxygen saturation, and urinary continence). These variables of physical function distinguish it from the other instruments that measure delirium. This instrument contains nine items organized in three domains, with a total possible score ranging from 0 to 30. A total score of 19 or less indicates moderate to severe confusion, 20–24 indicates mild or early developing confusion, 25–26 indicates not confused but with a high risk of confusion, and 27–30 indicates not confused or normal function (Neelon et al. 1996). NEECHAM is an instrument for assessing acute confusion in hospitalized patients, particularly in the early stages. The scale can be scored with data derived during routine clinical assessments of acutely ill patients. The scale detects changes in severity of acute confusion, and testing can be repeated at frequent intervals. Data needed to score the NEECHAM can be collected during 10 min of routine patient observation and vital sign assessment. For example, in scoring item 1 (attention/alertness), nurses are asked to observe the patient's immediate responsiveness to events or cues (whether the patient responds appropriately by focusing head/eyes when the nurse enters the room or approaches the bedside or by some recognition of the nurse's role, etc.). Patients with impaired arousal may not respond to the verbal commands of item 2 (complex command processing) but may respond to visually or physically cued commands, such as showing a cup of fluid or touching a cup to the lips while asking the patient to drink. Accurate scoring of the NEECHAM requires an awareness of physical disabilities (visual, hearing, motor, etc.) that affect the patient's mode of responding to signals. Eye movements, facial expressions, or responses to touch could offer acceptable alternative data for scoring (Neelon et al. 1996).

The NEECHAM scale was developed as a nursing screening and not as a diagnostic tool. This instrument uses the daily observation skills of nurses and their standard 24-h monitoring of patient in the ICU. It could enable nurses to recognize a possible delirium in an early stage so that the treatment is possible and the behavior could be prevented. This scale showed acceptable sensitivity, specificity, and predictive values. But the NEECHAM is not easy to use; it comprises three levels including nine items, and it might lead to misunderstanding for bedside nurses

because of its complexity. It can only assess those who could verbally express themselves and cannot evaluate the intubated or sedated patients (Csokasy 1999).

#### 9.1.2.4 Intensive Care Delirium Screening Checklist (ICDSC)

Intensive Care Delirium Screening Checklist can easily be applied by a clinician or a nurse in a busy critical care setting to screen all patients even when communication is compromised. The tool can be utilized quickly and helps to identify delirious patients. The ICDSC assessment evaluates the level of consciousness, inattention, disorientation, hallucinations, psychomotor activity, speech or mood disturbance, sleep disturbance, and fluctuation of symptoms (Bergeron et al. 2001).

#### 9.1.2.5 Nursing Delirium Screening Scale (Nu-DESC)

The Nu-DESC is an observational five-item scale that can be completed quickly. The Nu-DESC is a delirium screening instrument that can be easily integrated into routine care and clinical practice. It is easy to use, time-efficient, and accurate and could lead to prompt delirium recognition and treatment. The Nu-DESC shows promise as a useful concomitant delirium research tool, allowing continuous screening, symptom monitoring, and severity rating. The Nu-DESC developed by Gaudreau et al. (2005) is a delirium screening instrument that can be easily integrated into routine care and clinical practice. This scoring system is largely based on the Confusion Rating Scale. However, the Nu-DESC is a five-item scale comprising, in addition to the four items of the Confusion Rating Scale, a fifth item. The addition of psychomotor retardation as the fifth major component, as well as several other subcomponents of the Nu-DESC scoring system, gave it some resemblance of the DSM-IV. The fifth item, rating unusual psychomotor retardation, took into account medical condition (delayed responsiveness and few or no spontaneous actions/words, e.g., when the patient is prodded, reaction is deferred, and/or the patient is unarousable). This brings the maximal screening score to 10. The Nu-DESC has the sensitivity of .86 and a specificity of .87 for detecting delirium. The Nu-DESC comprises only five items, so it is easy to use, time-efficient, and accurate and could lead to prompt delirium recognition and treatment. The Nu-DESC shows promise as a useful concomitant delirium assessment tool, allowing continuous screening and symptom monitoring. It is an observational screening tool for delirium, which requires no direct patient participation and can be administered by registered nurses in only 1–2 min (Gaudreau et al. 2005).

#### 9.1.2.6 Delirium Detection Score (DDS)

The DDS is an instrument adaptable to detect severe delirium. It takes into account several criteria to assess the severity of delirium. Furthermore, it might help to start a symptom-guided therapy plan easily and immediately. Thus, the DDS could help to guide the management of the delirious ICU patients and is predictive for medication use. However, the result of one study showed DDS with low sensitivity. The reason might be that the DDS looks for agitation but not psychomotor retardation, whereas the hypoactive form of delirium is much more.

The DDS is modified from the CIWA-Ar to ICU needs and is composed of eight criteria: agitation, anxiety, hallucination, orientation, seizures, tremor, paroxysmal sweating, and altered sleep-wake rhythm. For each criterion, 0, 1, 4, or 7 points can be allocated depending on the symptoms (e.g., orientation: 0 = orientated to time, place, and personal identity and able to concentrate; 1 = not sure about time and/or place, not able to concentrate; 4 = not orientated to time and/or place; 7 = not orientated to time, place, and personal identity). A total of 56 points is possible. Compared with the CIWA-Ar, in the DDS, hallucinations account for only a maximum of 7 points. Following intubation sensations (see items tactile, auditory, and visual disturbance of the CIWA-Ar), accounting for a maximum of 21 points of 67 of the CIWA-Ar would have to be set to "0" because in this incidence it is often hardly possible to diagnose hallucinations. The sensitivity and specificity of DDS were 69 and 75%.

Analysis of consecutive measurements showed that the DDS can detect symptoms of delirium, and that can help track and assess treatment. However, delirium was detected by the DDS at the same time as the clinical diagnosis of delirium was established. The DDS is composed of several criteria (agitation, anxiety, orientation, and so on) (Otter et al. 2005).

### 9.1.3 Prevention of Delirium

Despite years of evidence revealing the risks connected with delirium development, there is still a gap between current practice and ideal processes of care, since health professionals show little sensitivity toward this morbidity. It is estimated that one-third of hospital-acquired delirium cases could be prevented with appropriate interventions. Early recognition of risk factors, signs, and symptoms understanding the predisposing and precipitating risk factors is considered the most effective way to reduce delirium incidence. Since early delirium diagnosis is the first step toward prevention and treatment, the introduction into clinical practice of validated tools for neurological monitoring is a key point of hospitalized patient care. However, daily delirium monitoring is only a part of the multidimensional approach required to prevent—and treat—delirium. Evaluation of risk factors, organizational and orientation interventions, correction of underlying metabolic/organic causes before administering any neuroactive drug, early mobilization and rehabilitation, and the choice of non-deliriogenic sedatives and analgesics when needed are all key factors in delirium prevention (Mistraletti et al. 2012).

In recent years, the English National Clinical Guideline Centre (www.nice.org.uk/guidance/CG103) has issued guidelines that revised the most significant studies, conducted in the hospital settings, concerning the efficacy of a multidimensional approach for delirium prevention. International recommendations include the routine evaluation of the main risk factors for delirium (age > 65 years, dementia, hip fracture, and high-risk clinical conditions), in an attempt to identify, beginning at the time of admission to hospital, the most fragile patients, who require the maximum preventive efforts. The following is a list of possible interventions:

- Involve relatives in neurological monitoring to increase the number of controls.
- Program specific meetings for the handover between staff members.
- Organize training courses for operators about validated delirium monitoring tools. Provide continuous visual and auditory media used at home:
  - Place wall clocks, wristwatches, and possibly calendars.
  - Call patients by name.
  - Encourage the placement of pictures or family photographs in the room.
  - Orient the patient's bed so she/he can perceive the alternation of daylight/darkness.
  - Schedule informational interviews with medical personnel concerning diagnostic and therapeutic measures.
- Allow newspaper reading.
- Relaxation interventions.
- Promote nocturnal sleep (silence, vibrating alarms, darkness; avoid nursing procedures whenever possible), discourage daytime sleep, and supplement with melatonin.
- Clinical management interventions.
- Promptly correct hypoxia, hypo/hypertension, anemia, and cardiac arrhythmias.
- Ensure adequate enteral hydration.
- Ensure intake of an adequate amount of calories, trace elements, and vitamins, preferably through the enteral route.
- Encourage the use of dentures whenever possible.
- Facilitate intestinal transit and evacuation.
- Suspend unnecessary drug treatments, especially neuroactive drugs.
- Provide activity rehabilitation/mobilization.
- Provide venous thrombosis prophylaxis.
- Use physical restraints only if strictly necessary.
- Minimize the use of invasive tools (urinary catheter, intravenous infusion lines, and nasogastric tube).
- The use of a flowchart can provide an opportunity to address the problem with an easier-to-handle, step-by-step approach.

Along these lines, physicians and nurses are invited to consider and correct all those factors (i.e., organic and metabolic causes, presence of invasive tools, pain, etc.) that could contribute to delirium development before administering any neuroactive drug (Mistraletti et al. 2012).

Multidisciplinary intervention program including education, guidance, and a changed caring organization reduces the duration of delirium, shortens the length of the hospital stay, and reduces the mortality rate during hospitalization for delirious patients (Lundström et al. 2005). Limitations notwithstanding, the evidence suggests that a broad spectrum of systematic interventions (education, support, reorientation, anxiety reduction, preoperative medical assessment) may be modestly effective in preventing delirium among middle-aged and elderly surgical patients; the median rate of reduction was 13%; interventions by nurses alone were as effective as interventions involving physicians (Cole 1999; Lundström et al. 2005) (see Table 9.1). Pain management

eliminate the occurrence of delirium in a frail elderly surgical population (Barr et al. 2013). Nurses should carefully assess pain management in their older patients. Effective pain management reduces the risk for delirium and that nurses should implement effective individualized pain management strategies with clients at risk for or experiencing delirium (Schreier 2010). If using a PCA pump, the older patient's ability to manage the pump should be reassessed often. If a patient is admitted with risk factors for development of delirium, unmanaged pain might be the additional factor that precipitates delirium (Robinson et al. 2008). Proactive geriatric consultation could significantly reduce the incidence of delirium in patients after hip fracture, particularly the incidence of severe delirium. Nurse-led interdisciplinary delirium intervention programs have a positive effect on the incidence and course (severity and duration) of delirium, cognitive functioning, functional rehabilitation, mortality, and length of stay in older hip fracture patients (Inouye et al. 1999; Marcantonio et al. 2003) (see Table 9.2).

**Table 9.1** Recommendations for the prevention of delirium (Michaud et al. 2007)

| General recommendations | Specific recommendations |
|---|---|
| Detect and treat cognitive impairment | Routine screening of cognitive functions and delirium, whenever possible, using standardized instruments (e.g., MMSE or BOMC on admission and CAM during hospital stay)<br>Cognitively stimulating activities adapted to the patient |
| Favor high-quality sleep | Nonpharmacological sleep promotion<br>Noise reduction; use of low-level lighting; avoidance of constant lighting<br>Maintenance of a normal sleep-wake cycle |
| Minimize drug side effects | Limitation of the total number of drugs<br>Avoidance or cautious use of the following medications<br>• Psychotropics, especially hypnosedatives and benzodiazepines<br>• Anticholinergic drugs<br>• Opioids |
| Prevent/correct electrolytic disturbances and dehydration | Stimulation of adequate hydration; use of fluid balance charts<br>Biochemical screening; early management of electrolyte disturbances<br>Hypodermoclysis if oral intake is inadequate |
| Improve communication and orientation | Regular verbal communication; use of short sentences; frequent information on place, reason for hospitalization, and daily activities; whenever possible, involvement of patient in the process of care; information and reassurance about medical procedures<br>On-time Q clocks and calendars; familiar artifacts, whenever possible (i.e., posters); avoidance of ward or room transfers; continuity of care |
| Limit sensory underload or overload | Screening for visual and hearing impairment; provision of visual and hearing aids; adequate lighting; use of night-lights; avoidance of blind rooms (without windows) |
| Involve and inform significant others | Information of proxies regarding delirium; encouragement of visits to the patient and involvement in orientation; nursing and feeding; support of proxies |

(continued)

**Table 9.1** (continued)

| General recommendations | Specific recommendations |
|---|---|
| Avoid malnutrition and vitamin deficiencies | Nutritional support and/or vitamin supplements for high-risk groups (i.e., B vitamins for alcoholic abusers) |
| Prevent or treat withdrawal | If middle-aged adults are at high risk for alcohol withdrawal, prevention with benzodiazepines<br>Clomethiazole for prevention of withdrawal in the elderly<br>Systematic screening for alcohol abuse |
| Do not use physical restraints | Protocol for physical restraints |
| Favor mobilization | Avoidance of immobilization; education regarding hazards of bed rest<br>Limiting the use of catheter and intravenous line; avoidance of the use of Foley catheter<br>Early mobilization protocol; evaluation by physiotherapist, whenever necessary<br>Stimulation of mobility; performance of self-care and daily activities |
| Optimize operative conditions | Adequate analgesia; patient-controlled analgesia, if feasible<br>Prevention of postoperative hypotension/hypoxemia<br>Maintenance of postoperative hematocrit level at >30% |
| Consider interventions on the system | Staff education<br>Development and implementation of guidelines regarding harmful procedures (i.e., physical restraints, medication, unnecessary catheters)<br>Adequate staff allocation<br>Involvement of volunteers and family |

### 9.1.4 Nursing Management of Delirium

The most important action for the management of delirium is the identification and management of the underlying cause. Symptoms are usually reversible when the underlying cause is identified quickly and managed properly, particularly if the cause is hypoglycemia, an infection, an iatrogenic factor, drug toxicity, or an electrolyte imbalance. However, recovery may be slow (days to even weeks), especially in elderly patients. Often the blood tests improve before the patient's brain does. All unnecessary drugs should be stopped. Identifiable disease should be treated, and fluids and nutrients should be given. A patient suspected of alcohol abuse or withdrawal should be given thiamine to ensure absorption. During hospitalization, such patients should be monitored for signs of withdrawal, which can be manifested by autonomic disturbances and worsening confusion and agitation. The environment should be as quiet and calm as possible, preferably with low lighting but not total darkness. Staff and family members should reassure the patient, reinforce orientation, and explain care and proceedings at every opportunity. Additional drugs should be avoided unless they are needed to reverse the underlying condition (Potter and George 2006). Agitation must sometimes be treated symptomatically, especially when it threatens the well-being of the patient, a caregiver, or a staff member. Judicious use of soft restraints can help prevent the patient

**Table 9.2** NICE recommendations for prevention of delirium in at-risk adults (O'Mahony et al. 2011)

| | |
|---|---|
| 1 | Ensure that persons at risk for delirium are cared for by a team of healthcare professionals who are familiar with the person at risk. Avoid moving persons within and between wards or rooms unless absolutely necessary |
| 2 | Give a tailored, multicomponent intervention package. Within 24 h of hospitalization, assess persons at risk for clinical factors contributing to delirium. On the basis of the results of this assessment, provide a multicomponent intervention tailored to the person's individual needs and care setting |
| 3 | The tailored, multicomponent intervention package should be delivered by a multidisciplinary team trained and competent in delirium prevention |
| 4 | Address cognitive impairment or disorientation by providing appropriate lighting and clear signage; ensuring that a clock (consider providing a 24-h clock in the critical care unit) and a calendar are easily visible to the person at risk; talking to the person to reorient them by explaining where they are, who they are, and what your role is; introducing cognitively stimulating activities (e.g., reminiscence); and facilitating regular visits from family and friends |
| 5 | Address dehydration and constipation by ensuring adequate fluid intake to prevent dehydration by encouraging the person to drink—consider offering subcutaneous or intravenous fluids, if necessary, and taking advice when managing fluid balance in persons with comorbid conditions (e.g., heart failure) |
| 6 | Assess for hypoxia and optimize oxygen saturation, if necessary, as clinically appropriate |
| 7 | Address infection by looking for and treating infection, avoiding unnecessary catheterization, and implementing infection-control procedures in line with the NICE clinical guideline on infection control |
| 8 | Address immobility or limited mobility through the following actions: encourage persons to mobilize soon after surgery and walk (provide appropriate walking aids that are accessible at all times) and encourage all persons, including persons who are unable to walk, to carry out active, range-of-motion exercises |
| 9 | Address pain by assessing for pain; looking for nonverbal signs of pain, particularly in persons with communication difficulties (e.g., persons with learning difficulties or dementia or persons on a ventilator or who have a tracheostomy); and initiating and reviewing appropriate pain management in any person in whom pain is identified or suspected |
| 10 | Carry out a medication review for persons receiving several drugs, taking into account both the type and the number of medications |
| 11 | Address poor nutrition by following the advice given in the nutrition support in adults section in the NICE clinical guideline 32 (14) and ensuring that dentures fit properly in persons who have them |
| 12 | Address sensory impairment by resolving any reversible cause of the impairment, such as impacted ear wax, and ensuring hearing and visual aids are available to and used by persons who need them and check that such aids are in good working order |
| 13 | Promote good sleep patterns and sleep hygiene by avoiding nursing or medical procedures during sleeping hours, if possible, scheduling medication rounds to avoid disturbing sleep, and reducing noise to a minimum during sleep periods |

from pulling out intravenous and other lines. Restraints should be applied by someone trained or experienced in their use, released at times to prevent injury, and discontinued as soon as possible. The main symptoms that may require pharmacologic treatment are psychosis and insomnia (Packard 2001). The patient should be nursed in a good sensory environment and with a reality orientation approach and with involvement of the multidisciplinary team (McCusker et al. 2001) (see Table 9.3).

**Table 9.3** Steps in the prevention, diagnosis, and management of delirium (Potter and George 2006)

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| *Step 1*<br>Identify all older patients (over 65 years) with cognitive impairment using the AMT or MMSE on admission | |
| *Step 2*<br>Consider delirium in all patients with cognitive impairment and at high risk (severe illness, dementia, fractured neck of femur, visual and hearing impairment). Use the CAM screening instrument | |
| *Step 3*<br>Identify the cause of delirium if present from the history—obtained from relatives/carers—examination, and investigations. Treat underlying cause or causes—commonly drugs or drug withdrawal, infection, electrolyte disturbance, dehydration, or constipation | |
| *Step 4*<br>In patients with delirium *and* patients at high risk of delirium | |
| *Do*<br>• Provide environmental and personal orientation<br>• Ensure continuity of care<br>• Encourage mobility<br>• Reduce medication but ensure adequate analgesia<br>• Ensure hearing aids and spectacles are available and in good working order<br>• Avoid constipation<br>• Maintain a good sleep pattern<br>• Maintain good fluid intake<br>• Involve relatives and carers (carers leaflet)<br>• Avoid complications (immobility, malnutrition, pressure sores, oversedation, falls, incontinence)<br>• Liaise with old age psychiatry service | *Do not*<br>• Catheterize<br>• Use restraint<br>• Sedate routinely<br>• Argue with the patient |
| *Step 5*<br>If sedation has to be used, use one drug only starting at the lowest possible dose (haloperidol 0.5 mg currently recommended) and increasing in increments, if necessary, after an interval of 2 h | |
| *Step 6*<br>Ensure a safe discharge and consider follow-up with old age psychiatry team<br>Provide family/carer education and support | |

*AMT* abbreviated mental test, *CAM* Confusion Assessment Method, *MMSE* Mini-Mental State Examination

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