

GERONTOLOGY

Unmasking Delirium

NURSES CAN PLAY A KEY ROLE IN THE PREVENTION, DETECTION AND TREATMENT OF DELIRIUM IN OLDER ADULTS.



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ABSTRACT

The authors use a case study to illustrate the risks of delirium in older adult patients and discuss ways to prevent, identify and manage its occurrence.

An estimated 60 to 80 per cent of hospitalized frail older adults experience at least one preventable episode of delirium, often leading to prolonged hospitalization, functional decline, increased morbidity and eventual nursing home placement or death. Delirium is a medical emergency, characterized by acute onset and a fluctuating course that is demonstrated by abrupt changes in mental status and function. It has three categories: hyperactive, hypoactive and mixed. Although delirium is amenable to expert nursing care, it is unrecognized or misdiagnosed in up to 70 per cent of older patients. Delirium results from the interplay of multiple forces associated with illness in the older adult, including drugs, substance abuse, metabolic disturbances, nutritional deficiencies, fluid disturbances, acute trauma or illness, infection and impaired physical or functional ability.

A proactive strategy for delirium prevention and treatment targets defined risk factors and the management of physiologic factors that precipitate delirium. It includes assessment, therapeutic environmental modification, standardized protocols for physiological interventions and staff education.

KEYWORDS: delirium, elderly, gerontology, hospitalized older adults

Mrs. S., an 82-year-old widow, was doing her spring housecleaning when she slipped off a chair, fell to her apartment floor and found herself unable to get up. After several hours, a neighbour found Mrs. S. and took her to the hospital, where she had surgery for a fractured hip. By her second postoperative day, Mrs. S. was hyperalert, easily distractible and unable to follow or remember instructions. Her flow of thought was illogical, and she was disoriented to time and place. She repeatedly tried to get out of bed, refused care from nurses and hollered for her daughter. Mrs. S. was experiencing delirium, the most frequently occurring cognitive disorder among hospitalized older adults.

An estimated 60 to 80 per cent of hospitalized frail older adults experience at least one preventable episode of delirium (Britton & Russell, 2006; Foreman, Wakefield, Culp, & Milisen, 2001; Inouye, Rushing, Foreman, Palmer, & Pompei, 1998). For many patients, this onset of delirium leads to prolonged hospitalization, functional decline, increased morbidity and eventual nursing home placement or death. Although the true end points of delirium are unknown, approximately 30 to 90 per cent of older adults leave hospital with unresolved delirium (Foreman et al., 2001). This is of grave concern, as many of these adults live alone and are expected to manage complex care regimes despite a varying ability to think clearly (Foreman et al., 2001; Rockwood, 1993).

Delirium is a medical emergency characterized by acute onset and a fluctuating course that is demonstrated by abrupt changes in mental status and function. The literature has about 30 descriptions of delirium (Aird & McIntosh, 2004), but most agree with the following presenting symptoms: reduced awareness of environment with decreased ability to focus or sustain attention; changes in cognition; failure of higher order functions; psychomotor changes varying from hyperactivity to hypoactivity; emotional disturbances; sleep/wake cycle disturbances; nocturnal agitation; disturbed affect, mood >

and behaviour; perceptual disturbances inclusive of hallucinations and illusions; paranoia; and multifactorial etiology.

Three categories of delirium exist: hyperactive, hypoactive and mixed. Mrs. S. demonstrated hyperactive delirium, which is associated with hypoxia and characterized by hypervigilance, agitation, restlessness, hallucinations and disruptive behaviour. Hypoactive delirium is frequently associated with drug intoxication or metabolic toxicity and is characterized by slow psychomotor activity, lethargy and apathy. This type often goes unrecognized, as the patient is “quiet” and not disruptive to nursing routines (Foreman et al., 2001). The mixed category is a blend of each.

As a preventable and reversible cause of morbidity, delirium is amenable to expert nursing care. Yet research suggests that delirium remains unrecognized and misdiagnosed in up to 70 per cent of older patients (Inouye et al., 1999; Hanley, 2004). The challenge is to heighten the awareness of nurses and other health professionals to delirium in hospitalized older adults so that steps can be taken to prevent, diagnose and manage it.

One reason that delirium is misdiagnosed and, hence, managed inappropriately is the similarity of symptoms among the “three Ds”: dementia, depression and delirium (see Table 1). Moreover, the three Ds may occur simultaneously (Lee, 2005). Nurses need to be aware that these conditions have different pathophysiological bases that should be considered when planning interventions. Although the symptoms are similar, the sudden onset of delirium and the fluctuating changes in ability to focus and sustain attention are distinguishing hallmarks that should alert the nurse for the need to intervene promptly with a delirium protocol (Hanley, 2004).

ETIOLOGY AND RISK FACTORS

Delirium results from the interplay of multiple forces associated with illness in the older adult. These forces may include pharmacologic agents (four or more in combination), especially anticholinergics, narcotics and sedatives; drug or alcohol abuse or withdrawal; metabolic disturbances and nutritional deficiencies (which lead to abnormalities in neurotransmitters and metabolic dysfunction in the

brain); poor renal function and fluid disturbances leading to dehydration with electrolyte imbalance, hypoglycemia, hyperglycemia or hypoxia; acute trauma or illness; infection; and impaired physical or functional ability, including altered mobility, impaired activities of daily living, urinary retention and fecal impaction (Cole, 2004; Lee, 2005; Rapp, Menten, & Titler, 2001). All of these can cause cerebral dysfunction and changes to neurochemistry. In addition, the environmental change that accompanies hospitalization — with the potential for sleep disturbances, sensory overload or deprivation, limited social contact and stress — puts the older adult at risk for delirium.

To prevent delirium and maintain functioning, early intervention is crucial to address the multidimensional factors that lead to its development and promptly manage any underlying conditions (Foreman et al., 2001).

DELIRIUM PROTOCOL

A proactive strategy for delirium prevention and treatment targets defined risk factors and the management of physiologic factors that precipitate delirium. It includes assessment, therapeutic environmental modification, standardized protocols for physiological interventions and staff education.

Assessment. Fifty to 70 per cent of cases of delirium are undetected by usual nursing assessments (Neelon, Champagne, Carlson, & Funk, 1996; Rapp et al., 2001). This finding highlights the need to be vigilant about assessments and continued surveillance. The assessment should include a baseline neurological assessment (attention, memory, thinking, perception and social skills); a physical assessment to identify potential and actual physiologic causes, such as hypoxia and dehydration; a dialogue with the family about the patient’s level of cognitive functioning before hospitalization; and a complete medication evaluation (Aird & McIntosh, 2004; Hanley, 2004; Waszynski, 2004).

Astute nursing observation of the patient’s abilities to perform activities of daily living can reveal much about the patient’s mental status. A range of assessment tools are available. A popular one is the Confusion Assessment Method (CAM) (Inouye et al., 1990), which takes about five minutes to complete, is consistently reliable and is applicable to a variety of settings, including acute care. In Mrs. S.’s case, the nurse used CAM to assess her and then documented that she was exhibiting early delirium — a documentation of much more value than the common (but unhelpful) note that a patient is “confused and troublesome.”

A collaborative relationship between family members and hospital staff can contribute to improved assessment and bring comfort and support to older adults. An interview with family members can reveal the patient’s level of cognitive functioning before admission, provide knowledge of the preferences of older patients and the personal meanings of behaviours, and identify subtle signs of change in mental status. Without a family interview, hospital staff has limited >

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Table 1. Characteristics of delirium, dementia and depression

Feature	Delirium	Dementia	Depression
Onset	Acute	Insidious	Gradual, may be triggered by life events
Main symptoms	Failure of higher order functions (inattention and acute impairment in cognition, falls), symptoms fluctuate	Memory loss	Sadness, feeling blue, loss of interest and pleasure
Progression	Abrupt	Slow but steady decline over months to years	Variable, may be months to years
Course	Short, worse at night and early morning	Long, symptoms progressive	Diurnal effects, often worse in the morning
Duration	Hours to < one month	Months to years	Variable, several weeks to months or years
Alertness	Lethargic or hyper vigilant	Normal	Normal
Attention	Easily distracted, reduced ability to focus	Normal	Normal to minimal impairment
Thinking	Distorted, slow or accelerated with rambling speech	Poor judgment, difficulty with abstract thought	Intact but feelings of hopelessness, sadness, helplessness
Memory	Immediate and short-term memory loss	Recent and past memory loss	Normal to selective loss
Orientation	Generally impaired	May be impaired	Selective disorientation
Perception	Distorted (delusions and hallucinations)	Misperceptions often absent	Intact
Triggers	Multifactorial: environmental change, stress, illness, medications, sensory deficits	Alzheimer's disease, vitamin B ₁₂ deficiency, TIAs, vascular dementia	Loss (spouse, independence, etc.), genetic predisposition to negative life events, chemical imbalance

Sources: Edwards, 2003; Hanley, 2004; Rapp et al., 2001; Registered Nurses Association of Ontario, 2003; Rockwood, 2002



ability to obtain this knowledge because of short hospital stays and high levels of illness acuity (Miller, Campbell, Moore, & Schofield, 2004).

A medication profile assists the nurse in identifying potential drug interactions that put the patient at risk for delirium. Normal aging alters the body's ability to metabolize drugs, adding to the risk for drug reactions. Although any medication may contribute to delirium in the older adult, sedatives, antipsychotics, histamine receptor antagonists and anticholinergics increase the risk for delirium (Hanley, 2004). In addition, older adults' higher percentage of body fat and lower percentage of water mean that the effects of fat-soluble drugs are more concentrated and last longer.

Therapeutic environmental modification. Nursing interventions to promote a therapeutic environment focus on balance — between sensory deprivation and sensory overload, and between patient independence and supportive care. Such balancing is both an art and a science. Environmental modifications should promote optimal cognitive functioning, a balance between rest and exercise and consistent nursing care. A number of environmental modifications reduce the risk of delirium episodes and promote patient independence:

- Keep the physical environment consistent and maintain routines.
- Provide continuity of staffing for accurate assessment of the patient's health status and consistent patient care.
- Involve family in care and do frequent orientation to promote a sense of well-being.
- Reduce visits if hyperactive delirium appears to be stimulated by visits.

- Use volunteer sitters if family members are unavailable.
- Avoid bed and room changes whenever possible.
- Use a no-restraint or least-restraint policy to reduce worsening of cognitive impairment.
- Remove unnecessary hospital equipment, such as urinary catheters and IV pumps.
- Ensure that the call bell, personal items, glasses and hearing aids are within easy reach.
- Encourage the use of personal items, such as comforters and pillows, to promote familiarity and reduce stress.
- Create well-lit surroundings.
- Maintain room temperature between 21.1 C and 23.8 C.
- Reduce noise levels on the nursing unit.

Standardized protocols for physiological interventions. Older adult patients are often physiologically compromised because of a host of conditions that may contribute to the development of delirium. The history, physical examination and laboratory values provide evidence about whether delirium is caused by the physiological consequences of a general condition, medication use or combined risk factors. It is essential to manage the physiological risk factors that precipitate the delirium. Nursing care must be tailored to meet the individual needs of the patient. Hence, a standardized protocol for responding to the risk factors associated with delirium should be established that includes, at a minimum, six protocols — one each for cognitive impairment, sleep deprivation, immobility, dehydration, visual impairment and hearing impairment (see Table 2).

Staff education. Misdiagnosis and failure to manage delirium can lead to serious consequences (Foreman et al., 2001). Older adult patients, especially those experiencing hyperactive delirium, can challenge the nurse who may already be feeling stressed and overburdened. Conversely, nurses may miss the subtle signs in the hypoactive delirium patient if they are not educated to be observant and vigilant in their assessment. The high rate of diagnostic errors confirms the need for ongoing staff education on best ways to prevent, assess and manage delirium. An informed professional staff member, working with trained volunteers and family members, can help to address this problem (Milisen et al., 2002).

Continuing education sessions need to emphasize the complex etiologic factors associated with delirium, as well as the symptomatic and supportive care interventions required. Classes should focus on strategies to recognize delirium in older patients; the impact of delirium on the patient's physical, psychological and emotional well-being; the use of routine standardized and comprehensive cognitive assessment tools; sensitivity about stereotyping of confused older adult patients that may lead to inappropriate care; understanding of the delirium experience from the perspective of the patient; and the use of targeted intervention protocols to prevent and manage delirium. ▶

Table 2. Risk factors for delirium and intervention protocols

Risk Factor	Intervention Protocol
Cognitive impairment	<p>All older adult patients should receive orientation strategies at least once per day; those experiencing delirium episodes, three times per day. Strategies include:</p> <ul style="list-style-type: none"> • use of calm, gentle, verbal reassurance • inclusion of the patient in discussion of daily schedule • review of daily hospital routine and patient schedule with the patient • orientation to room, unit and time • verbal reminders of day, time, location and identity of key individuals as needed • use of whiteboards with names of caregivers and daily schedule in patient's line of vision • clear signage to patient's location • re-introduction of team members as needed • cognitive stimulation activities a minimum of three times daily, e.g., reading the local newspaper, discussing current events, reminiscence therapy • provision of memory cues, such as family photos, clock, calendar • use of television, radio, etc. to maintain contact with the outside world
Sleep deprivation	<p>All older adults should be assessed once daily.</p> <ul style="list-style-type: none"> • Provide private room if possible. • Limit unnecessary noise to promote rest, especially at night. • Reschedule hospital routines, medications, etc. to allow for uninterrupted sleep. • Schedule quiet times or rest periods throughout the day. • Use unit-wide noise reduction strategies, such as silent pagers, to reduce agitation. • Use nonpharmacologic sleep aids, such as soft music, warm milk, herbal tea and back massages, at bedtime. • Use a 40-watt or 60-watt night light to reduce misperceptions.
Immobility	<p>Assess mobility and balance, as it is often a more sensitive and specific marker of delirium than cognition. All older adult patients should ambulate and do range-of-motion (ROM) exercises whenever possible. Non-ambulatory patients (bed or wheelchair bound) should receive ROM exercises at least three times per day.</p> <ul style="list-style-type: none"> • Make minimal use of immobilizing equipment such as bladder catheters and IVs. • Use a no-restraint or least-restraint policy.
Dehydration	<p>Screen for blood urea nitrogen to creatine levels >18:</p> <ul style="list-style-type: none"> • Assess, monitor, and record intake and output. • Encourage oral intake of fluids.
Visual impairment	<p>For patients with < 20/70 visual acuity on binocular testing:</p> <ul style="list-style-type: none"> • Use visual aids with daily reinforcement of their use. • Use larger size push-button telephones to promote independence. • Supply large-print books. • Use fluorescent tape on call bell.
Hearing impairment	<p>For patients hearing six of 12 whispers on the whisper test:</p> <ul style="list-style-type: none"> • Use portable amplifying devices with daily reinforcement. • Ensure earwax disimpaction. • Use special communication techniques, including calling patient by name, facing patient, talking directly to patient, use of simple sentences and words with few syllables, speaking in a calm voice and repeating comments as necessary.

Sources: Meagher, 2001; Inouye et al., 1999; Lee, 2005; Rapp et al., 2001; Rockwood, 2002



CASE SYNOPSIS

The involvement of Mrs. S.'s daughter in the patient assessment revealed that Mrs. S.'s behaviour was out of character. Before hospitalization, she was a high-functioning senior, living independently. Evaluation of Mrs. S. revealed unmanaged pain and hyperactive delirium. Adequate pain control was achieved using an extended-action analgesic q12h with a short-action agent PRN for breakthrough pain. Mrs. S. was moved to a private room with less environmental stimulation, and arrangements were made for her daughter to stay with her. She brought Mrs. S.'s glasses from home, along with a clock radio and a framed picture of her grandchildren. A sign was posted on her door to remind staff of the need for quiet rest periods. To promote orientation and ambulation, the consulting physiotherapist arranged to coordinate rehabilitation activities after scheduled rest periods, with Mrs. S.'s daughter present for support. Within 48 hours, Mrs. S.'s delirium had subsided. Although the diagnosis of delirium had been delayed, management of the underlying cause prevented worsening of the symptoms. Mrs. S. was discharged to her daughter's home, with plans to return to her apartment within a few weeks.

Most health professionals lack gerontological preparation and, therefore, are unable to critique the quality of their care and understand its consequences (King, 2005). Education that sensitizes nurses to the impact of delirium may motivate them to be more sensitive and caring to the patient mislabelled as "troublesome." By learning to prevent, diagnose and manage delirium, nurses can reassure patients that their unique needs are understood within the complex acute care system they have entered. ♦

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REFERENCES

- Aird, T., & McIntosh, M. (2004). Nursing tools and strategies to assess cognition and confusion. *British Journal of Nursing*, 13(10), 621-626.
- Britton, A., & Russell, R. (2006). Multidisciplinary team interventions for delirium in patients with chronic cognitive impairment [Abstract]. Retrieved March 16, 2006, from <http://www.mrw.interscience.wiley.com/cochrane/clsystrev/articles/CD000395/html>
- Cole, M.G. (2004). Delirium in elderly patients. *American Journal of Geriatric Psychiatry*, 12(1), 7-21.
- Edwards, N. (2003). Differentiating the three D's: Delirium, dementia, and depression. *Medsurg Nursing*, 12(6), 347-357.
- Foreman, M.D., Wakefield, B., Culp, K., & Milisen, K. (2001). Delirium in elderly patients: An overview of the state of the science. *Journal of Gerontological Nursing*, 27(4), 12-20.
- Hanley, C. (2004). Delirium in the acute care setting. *Medsurg Nursing*, 13(4), 217-225.
- Inouye, S.K., Bogardus, S.T., Charpentier, P.A., Leo-Summers, L., Acampora, D., Holford, T.R., et al. (1999). A multicomponent intervention to prevent delirium in hospitalized older patients. *New England Journal of Medicine*, 340(9), 669-676.
- Inouye, S.K., Rushing, J.T., Foreman, M.D., Palmer, R.M., & Pompei, P. (1998). Does delirium contribute to poor hospital outcomes? A three-site epidemiologic study. *Journal of General Internal Medicine*, 13(4), 234-242.
- Inouye, S.K., van Dyck, C.H., Alessi, C.A., Balkin, S., Siegel, A.P., & Horwitz, R.I. (1990). Clarifying confusion: The Confusion Assessment Method. A new method for detection of delirium. *Annals of Internal Medicine*, 113(12), 941-948.
- King, T. (2005). The escalating demand for long-term care. *Canadian Nurse*, 10(6), 10-15.
- Lee, V. (2005). Confusion: Geriatric self-learning module. *Medsurg Nursing*, 14(1), 38-41.
- Meagher, D.J. (2001). Delirium: Optimising management. *British Medical Journal*, 322(7279), 144-149.
- Milisen, K., Foreman, M.D., Wouters, B., Driesen, R., Godderis, J., Abraham, I.L., et al. (2002). Documentation of delirium in elderly patients with hip fracture. *Journal of Gerontological Nursing*, 28(11), 23-29.
- Miller, J., Campbell, J., Moore, K., & Schofield, A. (2004). Elder care supportive interventions protocol: Reducing discomfort in confused, hospitalized older adults. *Journal of Gerontological Nursing*, 30(8), 10-18.
- Neelon, V.J., Champagne, M.T., Carlson, J.R., & Funk, S.G. (1996). The NEECHAM Confusion Scale: Construction, validation, and clinical testing. *Nursing Research*, 45(6), 324-330.
- Rapp, C.G., Mentis, J.C., & Titler, M.G. (2001). Acute confusion/delirium protocol. *Journal of Gerontological Nursing*, 27(4), 21-33.
- Registered Nurses Association of Ontario. (2003). *Screening for delirium, dementia and depression in older adults*. Available from <http://www.rnao.org/bestpractices>
- Rockwood, K. (1993). The occurrence and duration of symptoms in elderly patients with delirium. *Journal of Gerontology*, 48(4), M162-M166.
- Rockwood, K.J. (2002). Out of the furrow and into the fire: Where do we go with delirium? *Canadian Medical Association Journal*, 167(7), 763-764.
- Waszynski, C.M. (2004). Confusion assessment method (CAM). *Medsurg Nursing*, 13(4), 269-270.