Complex Care Needs in Older Adults with Common Cognitive Disorders

Section B: Assessment and Management of Delirium

(Acute Confusional States)

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DELIRIUM (Acute Confusional States)

BACKGROUND

Delirium, also known as acute confusion, is a highly prevalent and serious health problem for acutely ill older adults. Delirium is defined as a transient and etiologically nonspecific organic mental syndrome characterized by a reduced ability to focus, sustain or shift attention, disturbance of consciousness or cognition (such as memory loss, disorientation and/or language disturbance) or the development of perceptual disturbance (APA, 2000 [Level VI]; for more information visit www.ConsultGeriRN.org and in Evidence Based Geriatrics Topics drop down menu select: Delirium). Perceptual disturbances often are accompanied by delusional (paranoid) thoughts, further contributing to behavioral and emotional manifestations (Stinnett, Freimuth, & Silber, 1994 [Level VI]). Always, the onset of delirium is acute or sub-acute, with symptoms developing over a short period of time (usually hours to days) that tend to fluctuate over the course of the day, often worsening at night (APA, 2000 [Level VI]). The onset occurs shortly after hospital admission, usually between days three to six (Foreman, Mion, Trygstad, and Fletcher, 1999 [Level VI]). The clinical course of delirium is variable. The possibilities are full recovery with early detection and intervention, or progression to stupor and/or coma, seizures and death. Recovery is the most common outcome and in most cases symptoms completely resolves within one to four weeks (APA 2000 [Level VI]). The duration of delirium depends in part on how quickly its causes are identified and how promptly and accurately treatment is initiated (Lundstrom, Edlund, Karlsson, Brannstrom, Bucht, & Gustafson, 2005 [Level III]; Rudberg et al, 1997 [Level III];). Personal philosophies about aging, lack of routine, systematic screening for delirium, variable clinical presentations, time-constraints and lack of physician "buy in" contribute to under-recognition of delirium (McCarthy, 2003 [Level III]). Because of its seriousness and reversibility, it is paramount that nurses practicing with older adults with complex illness be able to readily assess, prevent and manage delirium. Early detection and management is likely to reduce the incidence and progression of associated comorbidities of delirium such as urinary incontinence and falls. This module lays the foundation for the practicing nurse to have a thorough clinical understanding of delirium and informed clinical decision-making. At the conclusion of this section, the learner will have mastered the following objectives:

1. Identify features of the mental status assessment hallmarking the presence of delirium [Level 1].
2. Identify three major medical problems placing hospitalized elders at risk for delirium [Level 1]
3. Name two mental status assessment tools helpful in determining the presence of delirium in an older adult {Level 1]
4. Discuss with team members issues related to the impact of delirium on concurrent medical conditions, functional ability and psychosocial well-being (Level 2)
5. Co-contribute to ethical discussions related to care of the delirious older adult (Level 3)
6. Recognize the adverse drug reactions of certain medications in their production of delirium in older adults (Level 4)
7. Recognize the importance of environmental safety in the overall plan of care for the older adult with delirium (Level 4)

Significance

Delirium is associated with loss of function, falls and other complications (for more information visit www.ConsultGeriRN.org and select in Evidence Based Geriatrics Topics drop down menu select: Function and Fall). Patients with delirium are at increased risk for longer lengths of hospital stay, are more likely to be newly institutionalized post-hospital and require more nursing and home health care services even after controlling for age, gender, dementia, illness severity and functional status (Fick & Foreman, 2000 [Level VI]). At least one study has reported a two-fold increase in discharge mortality in patients who develop delirium in the hospital (McCuster, Cole, Dendukuri, Han, Bedzile, 2003 [Level III]). Higher levels of pre-morbid function seem to be related to better outcomes. Agitated behaviors frequently associated with delirium require increased nursing surveillance and can result in the use of physical and chemical restraints (Sullivan-Marx, 1994 [Level II]). Cost of delirium care has been assessed at $6.9 billion a year –an additional $2500 per patient in Medicare costs (Young & Inouye, 2007 [Level I]). General medical conditions, substance intoxication and substance withdrawal are common causal factors (APA 2000 [Level VI]). The frequent misdiagnosis of delirium, often as depression or dementia, and subsequent failure to recognize the etiology of delirium results in high morbidity and mortality (Sullivan-Marx & Foreman, 2006 [Level VI]; for more information visit www.ConsultGeriRN.org and select Resources, Try This: Assessing and Managing Delirium in Persons with Dementia or select in Evidence Based Geriatrics Topics drop down menu select: Depression).

Epidemiology and Risk Factors

Delirium is regarded as the most common complication of hospitalization for older people, occurring in 11-42% of medical inpatients (Siddiqi, Home, House, & Holmes, 2006 [Level I]). Up to half of older adults experience delirium post operatively, and the symptoms persist in about one third (Young & Inouye, 2007 [Level I]). In their study of delirium among older surgical ICU patients (Balas, Deutschman, Sullivan-Marx, Strumpf, Alston, & Richmond, 2007 [Level IV]) reported that over 28% older adults developed delirium while in the SICU and a full 45% experienced delirium some time during the course of their hospital stay. Kiely , Bergmann, Murphy, Jones, Orav, & Marcantonio (2003 [Level IV]) found that 16% of older patients admitted to post acute facilities had delirium [as defined by CAM] and 2/3 had at least one symptom of delirium. Little is known about the statistical incidence or prevalence of delirium in long-term care or community settings. However, a 40.5 percent prevalence of delirium in an older long-term care population has been reported (Culp et al., 1997 [Level II]), and among the cognitively impaired, 45 percent were found to develop delirium (Britton & Russell, 2005 [Level I]).

Delirium rates increase significantly as the number of underlying risk factors accumulates (see Table 1). The marked variability in the epidemiology of delirium results from the differences in study populations, diagnostic criteria and case-finding and research techniques (Levkoff, et al., 1991 [Level V]; Pompei et al., 1994 [Level II]; Rummans et al., 1995 [Level VI]). Older patients, in particular those with a preexisting dementia, may be discharged from the hospital while still delirious (Fick & Foreman, 2000 [Level VI]). Thus, communication about its new onset, and case management that includes screening and identification of patients who have developed delirium are essential components of a comprehensive plan of care (Naylor, Stephens, Bowles, & Bixby, 2005 [Level IV]).

Delirium is generally regarded as a clinical syndrome that results from the interaction of several pathological mechanisms (Young & Inouye, 2007 [Level I]). Any condition that

compromises brain function can precipitate delirium (see Table 2). Patients who are older, sicker, and cognitively impaired are most vulnerable to delirium during hospitalization (Foreman, 1999 [Level VI]). Anticholinergic medications, which block cholinergic transmitters in the brain, are thought to be the primary drug-related causes of delirium (Francis, 1992 [Level VI]; Tune, Carr, Hoag, & Cooper, 1992 [Level VI]; Young & Inouye, 2007 [Level I]). Alcohol withdrawal or sedative-hypnotic drug withdrawal also may underlie delirium. Over the counter (OTC) "home remedies" may increase an elder's risk for delirium because many have anticholinergic effects (NSAIDS, nasal sprays, cold and flu medicines; Foreman & Zane, 1996 [Level VI]; for more information visit www.ConsultGeriRN.org select Resources, Try This Series: Beers Criteria for Potentially Inappropriate Medication Use in the Elderly). Often tied to the new onset of acute confusion or delirium is a newly prescribed medication or home remedy, making history taking essential.

Infections, especially pyelonephritis and pneumonia, commonly cause delirium in older adults, even in the absence of sepsis (Rockwood, 1993 [Level II]). Fluid and electrolyte disturbances and major organ system failure often induce delirium (Rockwood, 1993 [Level II]). Surgery or trauma can induce delirium, as a result of anesthesia. Hospitalization is stressful and can contribute to the development of delirium. When several potential etiologies exist, the delirium rate is very high (Young & Inouye, 2007 [Level I]).

Increasingly delirium research has focused on the identification of risk factors or predictors to target high-risk patients in medical and surgical settings. The model by Inouye and Charpentier (1996 [Level II]) consists of variables that are clinically easily identifiable, measurable and controllable by nurses. This model relies on the interaction of predisposing host baseline factors (vision impairment, severe illness, preexisting cognitive impairment and dehydration) present on hospital admission with hospital and treatment-related precipitating factors (use of physical restraints, malnutrition, use of bladder catheter, more than three medications added and any iatrogenic event). Inouye and Charpentier's model has proven the most clinically useful in identifying and quantifying risk for delirium, while providing direction for minimizing such risk. An important element of this model is the ability to adjust a patient's risk for delirium on the basis of changes in the patient's status over the course of hospitalization. This model was developed and tested on a hospitalized older population and, thus, may not be applicable in other settings and predictability may be altered.

Clinical Presentation

Three clinical subtypes of delirium have been described: hyperactive, hypoactive and mixed. Hyperactive patients show increased psychomotor activity, such as rapid speech, irritability and restlessness. Most commonly, providers recognize and seek treatment for the hyperactive-hyperalert variant of delirium more readily than the other subtypes. It is believed that these patients are recognized more readily and frequently than the other subtypes because their behaviors are so disruptive, interfering with medical therapies and physician's diagnostic and nurses' caring activities (Milisen et al., 1998 [Level I]). Hypoactive patients present with lethargy, slowed speech, decreased alertness and apathy. Patients with hypoactive delirium are not disruptive to others and are overlooked often or misdiagnosed as being depressed (for additional information visit www.ConsultGeriRN.org and select Evidence Based Geriatrics Topics drop down menu: Depression). Patients with mixed delirium shift between hyperactive and hypoactive states. Thus, the delirium may be assumed to have improved, whereas actually the delirium may have worsened (Milisen et al.1998 [Level I]). This fluctuating pattern of presentation poses problems both in the daily management of an older adult with delirium and in

forecasting and allocating the amount of time for nursing services needed. In daily management patient needs may not be anticipated or planned, because they may be spurious and unpredictable.

ASSESSMENT

Diagnostic Evaluation

History The history is extremely helpful in establishing a diagnosis of delirium and finding the cause. The clinician should question family members and nursing staff regarding the patient's baseline level of mental function and any recent mental changes. Critical questions to elicit within the past medical history include: "When did the confusion begin?" "Does the condition change over a twenty-four-hour period?" "Is there a change in the person's sleep patterns?" "What specific thought problems have been noticed?" "Is there a history of mental illness or similar thought disturbance?" "Has there been any new or a change in prescribed or over the counter medications?" "Has there been a sudden decline in physical function or a new onset of falls?" Interviewing family or caregivers that have known the person over time and have observed them in a variety of situations is key when attempting to detect delirium in a person with a more chronic dementing illness.

Physical examination The hallmark of delirium is an abnormal mental status examination. Mental status screening tests are helpful in identifying cognitive deficits and should be performed routinely in older patients (Foreman, Fletcher, Mion, & Simon, 1996 [Level VI]). Several instruments for routine, standardized and systematic assessment of changes in cognitive status or detecting delirium have been described and reviewed in the literature (for more information visit www.ConsultGeriRN.org and select Resources, Try This Series: Confusion Assessment Method).

The Mini-Mental Status Examination (MMSE) has been favored as a helpful screening test for assessing cognition (Folstein, Folstein & McHugh, 1975 [Level II]; O'Brien, 1989 [Level VI]). The range of scores on the MMSE is zero to thirty. A score of twenty-three or less indicates cognitive disturbance (Tombaugh & McIntyre, 1992 [Level V]). Consideration should be given to advanced age, lower education level, fatigue and characteristics of the testing environment in some patients with a low score (Crum, Anthony, and Bassett, 1993 [Level II]). More recently, the MiniCog or the Montreal Cognitive Assessment [MoCA] have been found useful (see Section A Dementia). Rating scales specifically aimed at detecting delirium are also available (Delirium Rating Scale, Memorial Delirium Assessment Scale].

Given the challenges associated with implementation of a tool that requires writing or drawing in acutely ill older adults, the use of quick screens for inattention may be a good substitute. This might include digit span testing, or naming the days of the week backward (Young & Inouye, 2007 [Level I]). The letter recognition test may highlight attention problems (Bross & Tatum, 1994 [Level VI]). After instructing the patient to raise his or her hand only when the letter "A" is heard, the examiner then begins saying letters from the alphabet randomly. Delirious patients have inconsistent responses.

Two instruments specific for detecting delirium based on observation of behavior rather than formal testing have been developed. Both instruments are suitable for use at the bedside and can aid the nurse in identifying patients who are likely to suffer from delirium. By far, the most commonly used interview tool to confirm suspected delirium is the Confusion Assessment Scale, now recommended in both the US and British Delirium Guidelines (Young & Inouye, 2007 [Level I]). The CAM diagnostic algorithm (Inouye et al., 1999 [Level II]), has an overall

sensitivity of 94% and specificity of 89% (Wei, Rearing, Sternberg, Inouye, 2008 [Level I]). The CAM is a standardized diagnostic algorithm enabling individuals, even those without formal psychiatric training, to quickly and accurately identify delirium. Based on the Diagnostic and Statistical Manual of Mental Disorders criteria for delirium, the CAM was designed to capture information about the cardinal elements of delirium (e.g., acute onset and fluctuating course, altered level of consciousness, disorganized thinking, inattention), based on specific observations relevant to each of these elements. Patients are identified as positive for delirium using the CAM if three out of four features are present (Inouye, et al., 1999 [Level II]; See also Waszynski, 2007 [Level VI).

Finally, the NEECHAM Confusion Scale (Neelon et al., 1996 [Level IV]) has been developed to allow rapid evaluation for acute confusion by the nurse at the bedside using a structured database devised during routine nursing assessments and interactions with patients. Testing can be repeated at frequent intervals to monitor changes in the patient's mental status due to minimal response burden on the patient and because the scale is comprised of items that have no learning effect. Additional advantages of the NEECHAM scale are that it can detect delirium in its early stage and it is sensitive to both the hyperactive and hypoactive forms of delirium (Neelon et al. [Level IV]). Nine components of information processing, performance and vital function items are evaluated in this scale, allowing detection not only of changes in mental status, but also changes and different patterns of physiological and behavioral manifestations over short time periods. The range of scores is zero to thirty. The following cut-off scores for clinical practice are suggested: zero to nineteen indicating moderate to severe delirium, twenty to twenty-four indicating mild or early development of delirium, twenty-five to twenty-six indicating no delirium but at high risk for acute confusion and more than twenty-four indicating no delirium.

Other modalities helpful in the identification of delirium center around routine and periodic observation of the older adult's level of alertness (alert, hyperalert or hypoalert), behavior, mood, affect, verbalizations and motor abilities. When walking into the room to greet the older adult, the nurse can begin to note some of these important observations.

A comprehensive physical examination will usually identify the likely precipitants of delirium. Careful examination of the chest and abdomen, urine, and signs of hypo- and hyperthermia may help uncover infectious etiologies. In older adults, infection may present with either tachypnea or tachycardia. Tachycardia may be a sign of infection, alcohol withdrawal or heart failure. Other signs of heart failure include a third heart sound, basilar rales and dependent edema. Suprapubic and rectal examination may reveal urinary retention and fecal impaction. A neurological examination might uncover the focal deficits of cerebrovascular injury. Signs of meningitis, subdural hemorrhage and normal-pressure hydocephalus may also be found. Tremor and restlessness suggest alcohol withdrawal. Asterixis and myoclonus are suggestive of a metabolic encephalopathy, such as that associated with liver failure (Bross & Tatum, 1994 [Level VI]). Clinical signs of dehydration or volume depletion such as parched mucous membranes coupled with orthostatic hypotension may be the underlying culprit of a new onset of delirium.

<u>Diagnostic tests</u> The choice of diagnostic tests is based on the history and physical findings (O'Brien, 1989 [Level VI]; Johnson, 1990 [Level VI]). Baseline laboratory studies include a complete blood count, urinalysis and determination of electrolyte, calcium, blood urea nitrogen, creatinine, glucose, albumin, liver enzyme levels and thyroid function tests. Electrocardiography and chest radiographs are also indicated.

Thyroid function tests, determination of vitamin B12 and folic acid levels and screening for syphilis are warranted in selected patients with chronic mental status changes. To detect toxic ingestions, it is helpful to obtain drug and heavy metal screens and determine drug levels. When central nervous system trauma or vascular injury is suspected, computed tomographic scanning or magnetic resonance imaging is beneficial. Signs of infection call for appropriate culture, and lumbar puncture is indicated if meningitis is a diagnostic consideration. If cardiopulmonary disease is a possibility, determination of cardio enzymes and arterial blood gases should be performed. Debate continues about the nature of the relationships between sensory impairment, the environment and delirium (Foreman & Zane, et al. 1996 [Level VI]). Extremes in environmental characteristics are common with delirium, but it is unknown whether or not environmental factors are related to the genesis of delirium (Foreman, et al., 1996 [Level VI]). In general, environmental characteristics typically viewed as risk factors for delirium include moves within the hospital, absence of clock or watch, absence of reading glasses, absence of a family member, and use of restraints (Young & Inouye, 207 [Level I]).

When it is difficult to differentiate delirium from an acute psychotic state, electroencephalography is helpful. The electroencephalogram reveals diffuse slowing in most cases of delirium, fast activity in cases of delirium related to drug withdrawal and normal patterns in patients with acute functional psychosis (Francis, 1992 [Level VI]).

Differential Diagnosis

The clinical history, physical examination and laboratory studies usually differentiate delirium from other causes of confusion. The chronic confusion of dementia occurs gradually, persists greater than one month and is usually irreversible. Although both patients with dementia and those with delirium have cognitive impairment, most demented patients are alert and able to maintain attention in the early stages of dementia. Sudden cognitive and/or functional deterioration of a patient with dementia suggests superimposed delirium (Fisk & Mion, 2008 [Level VI]). Depression with apathy, slowed speech and mood disturbance may mimic hypoactive delirium. Acute functional psychosis also can resemble delirium. Functional psychosis usually has its onset at an earlier age and most older patients with functional psychosis have a history of psychiatric illness. In patients with functional psychosis, hallucinations tend to be auditory and delusions are more elaborate than that associated with delirium. Consultation with a psychiatrist or a neurologist may be necessary in difficult cases (Bross & Tatum, 1994 [Level VI]). From the perspective of safety, current thinking holds that all older people should be presumed delirious until proven otherwise when they present with confusion (Young & Inouye, 2007 [Level I]).

MANAGEMENT

Prevention

Preventing delirium in older patients requires addressing all the components of sound geriatric care (Young & Inouye, 2007 [Level I]; see Table 3). Community support systems, immunizations for influenza and pneumococcal pneumonia and early treatment of medical illness to prevent hospitalization can contribute to the reduction of delirium in this population. Medications known to precipitate delirium should be used sparingly (for more information visit www. Www.ConsultGeriRN.org and select Try This Series: Beer's Criteria for Potentially Inappropriate Medication Use in the Elderly). Stressful situations should be addressed and family and friends enlisted to help detect delirium in the early stages. Prevention of delirium rests on the recognition of risk factors and the rapid treatment of the underlying cause.

Management

Multi-component interventions to prevent delirium are the most effective and should be implemented between synergistic cooperation among the various health care disciplines (Milisen et al., 2005 [Level I]). Effective management of delirium requires early recognition and removal of precipitants, prompt treatment of the underlying cause and creation of a maximum supportive environment (Young & Inouye, 2007 [Level I]). The Yale Hospital Elder Life Program [HELP] model has been shown to produce good outcomes in reducing onset and duration of delirium in hospitalized elders (Inouye, Bogardus, Charpentier, Leo-Summers, Acampora, Holford, Cooney, 1999 [Level II]; (see Table for major components). Immediate medical treatment is necessary because further deterioration may occur rapidly. Medications thought to be deliriogenic should be discontinued or reduced to a minimum. Adequate nutrition and hydration are essential, since many delirious patients present in a malnourished state with a low serum albumin level. Keeping accurate track of intake and output on a twenty-four-hour basis is vital. Encouraging foods high in free water are integral parts of the management of volume depletion-dehydration syndrome. When oral feeding is not tolerated, enteral tube feeding or hyperalimentation may be necessary. Treatment of the underlying pathology typically results in rapid improvement of delirium (Rockwood, 1993 [Level II]).

A supportive environment should be emphasized in the care of the delirious patient. Presence of family members, friends or those who have a familiar and calming influence on the patient provides needed reassurance, relieves anxiety, helps prevent disorientation and enhances the person's connection to their immediate environment (Bross & Tatum, 1994 [Level VI]). The presence of a relative on admission to the hospital has been found to be helpful. Familiar items from home, such as photographs, a favorite pillow or piece of clothing may be comforting. Sensory losses that contribute to misperceptions can be minimized by having the patient use eyeglasses and hearing aids. A night-light and minimal noise can provide a soothing environment for sleep. Sleep should not be interrupted unless absolutely necessary. Consolidation of nighttime treatments, rescheduling of medications, as well as other unit-wide noise reduction strategies can help create an environment conducive to sleep (Kane & Kurlowicz, 1994 [Level V]; for more information visit www.ConsultGeriRN.org and select Geriatric Topics*: Sleep)*.

In order to maximize visualization of the delirious patient and to monitor frequently for changes in the patient's behavior, placement in a room with a window near the nurses' station is useful. Specific nursing interventions such as techniques to reinforce the patient's orientation and increase continuity of care have been shown to decrease the incidence of delirium after hip fracture (Williams et al., 1985 [Level III]). Having someone remain with the patient on a one-to-one basis allows constant supervision to prevent injury and provides respite for family members during periods of increased psychomotor agitation (Kane & Kurlowicz, 1994 [Level V]). Sitter services and use of staff that have been properly educated are essential in the acute care setting. Creative strategies to enhance protection of medical therapies (e.g., roll bandages over IV sites or an abdominal binder over abdominal dressings or tubes) should be employed, thus avoiding the use of physical restraints. Physical restraints should almost always be avoided or used briefly (Evans & Cotter, 2008; Level VI]. Planning effective communication strategies by nurses can provide patients with the information they need to maintain control and remain connected to their immediate environment. Communication aimed at reorienting the patient to surroundings (e.g., large, easily visible clock and calendar, a board with names of care team members, the daily schedule and integration of orienting cues into the patient's daily routine) is key. Cognitive

enhancing strategies (e.g., discussion of current events, discussion of specific interests, structured reminiscence and word games) should be incorporated into the plan of care and initiated several times a day (Inouye et al., 1999 [Level II]). Efforts must be taken to help the person maintain a sense of independence and control with the uncertainties of hospitalization (Milisen et al. 1998 [Level I]).

Care must be taken to avoid the complications of immobility. Skin breakdown can be minimized by frequently turning the patient, ambulating at regular intervals when permitted, providing appropriate bedding and keeping the patient's skin dry. Bowel and bladder problems, especially constipation, diarrhea and urinary incontinence, warrant prompt attention. Pulmonary care often is necessary to avoid atelectasis and pneumonia. Early ambulation, strengthening exercises, active and passive range of motion and minimal use of immobilizing equipment (bladder catheters or physical restraints) may help to preserve function (Inouye et al., [Level II]). Physical therapy consultation should be utilized routinely (Wanich, Sullivan-Marx, Gottlieb, & Johnson, 1992 [Level III]). Often times, older adults with delirium who are capable of mobility will need additional levels of assistance and verbal reassurance while transferring or moving about on the unit. Such added assistance is critical for frequent reinforcement of the activity and also as a safety precaution given the spurious determinations in level of alertness which occur, as well as the impaired communication which exist. Added assistance often goes beyond "arm in arm" assistance to include use of a rolling walker or wheelchair coupled with physical stand-by assistance. Utilization of the resource of an advanced practice geropsychiatric consultation liaison nurse has been shown to have positive results in delirium management (Kurlowicz, 2001 [Level IV]).

Pharmacologic Intervention

Pharmacologic agents may be useful when behaviors associated with psychotic thinking and perceptual disturbances (e.g., hallucinations) pose a safety risk for the patient and others, if the delirium interferes with needed medical therapies or in those cases in which behavioral interventions fail (Milisen et al., 2005 [Level I]). Medication should not be a substitute for detection, correction or elimination of the underlying cause or causes of delirium. In addition, medication should be used with caution because older delirious patients are especially sensitive to anticholinergic side effects of antipsychotic drugs that may worsen the delirium. Drugs should be given in low doses over the shortest possible time period.

Typically, low doses of high-potency neuroleptics like haloperidol have been used as a first-line therapy in the treatment of delirium (Sipahimalani & Masand, 1998 [Level III]). Although these drugs in general have a tolerable side effect profile and can be administered parenterally, they are frequently associated with extrapyramidal symptoms (EPS) such as dystonic reactions, akathisia and tardive dyskinesia. EPS is likely to be more common in delirious patients, in part because delirium is more common in elderly and severely medically ill patients who are more prone to EPS. Newer antipsychotics, such as olanzapine and risperidone, with a lower incidence of EPS, may be better tolerated than typical antipsychotics in older patients and may be useful alternatives to haloperidol in the treatment of delirium (Parellada, 2004 [Level II]; Sipahimalani & Masand, 1997 [Level V]; Sipahimalani & Masand, 1998 [Level III]; Young & Inouye, 2007 [Level I]). Neuroleptic malignant syndrome, a more serious side effect of antipsychotic therapy, can occur with high-potency as well as with novel anti-psychotics (Hasan & Buckley, 1998 [Level VI]). Benzodiazepines such as lorazepam are recommended for the treatment of delirium associated with alcohol withdrawal. In cases of non-

alcohol withdrawal delirium, benzodiazepines have the potential to worsen delirium and should be used with caution.

Aftercare

An important focus for care after resolution of the acute confusion is to provide an opportunity to discuss the experience and its meaning. Helping the patient to understand the bizarre and bewildering experience can be therapeutic (Schofeld, 1997 [Level III]). Delirium represents a stressful life event and psychiatric care can facilitate its resolution. Sensitive retrospective exploration of the experience may help the patient to understand the temporary loss of control within the context of physical disease. Schofeld found that many older patients were willing to describe their experiences; especially those that had elaborate illusions and/or hallucinations. Increasing the older patient's understanding and acceptance of the condition could lead to a more optimistic view of the future, which in turn might lead to a more rapid recovery. Patients should be instructed to inform healthcare providers with subsequent hospitalizations of their prior episode of delirium and suspected etiology. Comprehensive discharge planning, including referrals to home care services, such as psychiatric nursing home care services and physical and occupational therapy, should be initiated for this high-risk group of older adults.

Conclusion

Historically, delirium has been considered a benign condition that should be expected with acute illness in acutely ill older patients. It is often not given proper attention by healthcare providers. Delirium is a serious health problem associated with significant negative consequences. Because of its clinical impact and potential reversibility, prompt treatment of delirium is essential. Nursing remains on the frontline in the early identification of those patients most at risk for delirium, as well as early detection of symptoms. Routine and systematic assessment for confusion is key in order to prevent and effectively treat this problem and reduce its negative consequences.

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Table 1

<u>Risk Factors for Delirium</u>

Advanced age (especially greater than 80 years)

Dementia (cognitive impairment)

Severe illness

Multiple illnesses

Alcohol excess

Sensory impairment

Dehydration or infection

Polypharmacy (> 4 medications daily)

Previous episodes of delirium

Frailty

Renal impairment

Malnutrition

Immobility

Sleep deprivation
Sources: Young & Inouye, 2007; Inouye, et al, 1999.

Table 2

Common Precipitants of Delirium

Common Precipitants of Delirium
Drugs
Pain
Dehydration
Electrolyte and metabolic disturbances
Infection (especially lower respiratory, UTI)
Constipation
Alcohol withdrawal
Neurologic disorder
Hypoxia
Sleep deprivation
Surgery
Environment

Adapted from: Milisen et al. (1998) and Young & Inouye, 2007.

Table 3

Prevention and Management of Delirium in Older Adults update fix

Community support systems
Immunizations
Early treatment of medical illness
Rapid diagnosis and treatment of underlying organic precipitants
Elimination of deliriogenic medications
Pain control
Early detection
Identifying and managing risk factors
Orienting communication
Therapeutic activities
Early mobilization and walking
Non pharmacologic approaches to sleep ad anxiety'Adaptive appliances for hearing and vision'

Sources: Bross & Tatum, 199; Inouye et al12999.

Appendix A Levels of Evidence Cited

Level 1

Britton, A., & Russell, R. (2005)
Milisen, K., Foreman, M. D., Godderis, J., Abraham, I. L., & Broos, L. (1998)
Milisen, K., Lemiengre, J., Braes, T., & Foreman, M.D. (2005)
Siddiqi, N., House, A.O.,& Holmes, J.D. (2006)
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Young, J., & Inouye, S.K. (2007)

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Crum, R. M., Anthony, J. C., Bassett, S. S., & Folstein, M. F. (1993)
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Parellada, E., Baeza, I., de Pablo, J., & Martinez, G. (2004)
Rockwood, K. (1993)
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Level III

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Level V

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Level VI

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Sullivan-Marx & Foreman (2006)
Tune, L., Carr, S., Hoag, E., & Cooper, T. (1992)
Waszynski, C.M. (2007)

Appendix B Web Resources

On the Internet visit www.ConsultGeriRN.org and select Try This Series:

- Beers Criteria for Potentially Inappropriate Medication Use in the Elderly
- Confusion Assessment Method

- Assessing and Managing Delirium in Persons with Dementia

On the Internet visit www.ConsultGeriRN.org and select Evidence Based Geriatrics Topics drop down menu:

- Depression
- Delirium
- Fall
- Function
- Sleep

For Clinical Practice Guidelines available for long-term care, visit the American Medical Directors Association (AMDA) via the Internet at www.amda.com.

- Select Altered Mental Status

Appendix C Examples of Teaching Pedagogies for Delirium in Older Adults

Content Area: Topic	Recommended Pedagogy
Identification of older adults at risk for delirium	In the clinical practice setting, identify with the faculty preceptor an older adult over age 80, who has multiple comorbidities and recent acute illness (such as infection). Review this person's medical record and list risk factors for delirium. Include review of the medication record, past medical history, sensory status, functional status, index of pain, intake and output, vital signs, emotional and cognitive status. If information is unknown (such as not available), formulate a plan of care as to how you would further assess and identify risks for delirium in this person. What questions might you ask? What measurement tools might you administer? Who would you interview and why to gather additional information? What nursing interventions would you use to monitor this person who is at risk for delirium?
Assess cognitive function with an older adult thought to have delirium	In the clinical practice setting, identify with the faculty preceptor an older adult over age 80 thought to have a new onset of delirium. Before entering the room to evaluate this person, list all of the nursing observations you would make to determine if delirium is present. How might you frame your questions? What would you ask? What are key observations of the person? What might you observe about the environment? What are some considerations for framing the medical encounter in terms of your body language, voice tone and inflection of voice? What would you do if the person does not respond? What would you do if the person becomes agitated during your first encounter? How will

Content Area: Topic	Recommended Pedagogy
	you establish a trusting relationship? What measurement tools for cognition might you administer and why? Using the measurement tool you selected to assess cognition, what questions are you posing to elicit level of alertness, memory or recent recall abilities?
Assess the older adult and caregiving situation for unsafe living conditions and make alternative plans of care.	In the situation in which the delirious older adult resides with a family caregiver, identify and list concerns for safety in the home. What questions might you ask to determine: environmental safety; the patient and the family caregiver's ability to access to help; medication safety; the need for 24-hour supervision; adequacy of intake of fluids and food; safety in activity and mobility; and how falls, fires or burns can be prevented. What nursing interventions might you plan for the older adult to optimize cognition, function and psychosocial well-being? How would you or family caregivers monitor the effectiveness of these interventions? What community-based resources are available to assist with caregiving and safety in the home?