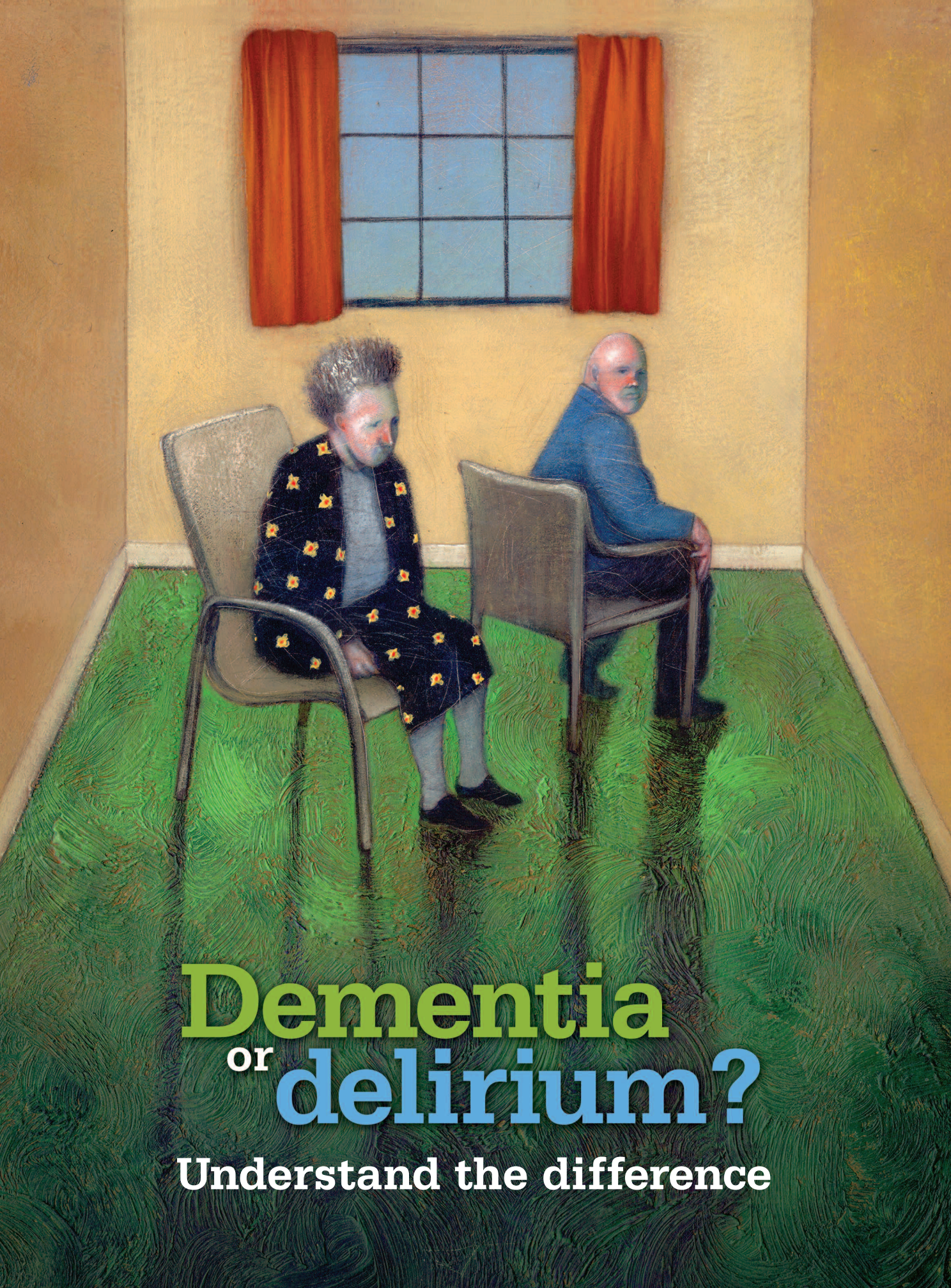

# Dementia or delirium?

## Understand the difference

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**Delirium and dementia are common problems in the acute care setting that make it a challenge for the bedside nurse to give the care needed to these patients.**

By Teresa E. Hills, RN, ACNP, BC, CNRN, MSN

Caring for patients with cognitive disorders can be challenging and physically and emotionally exhausting for the bedside nurse. Cognitive disorders come in many forms but in the acute care setting, understanding what is causing the changes is important in care management. Two common cognitive disorders that frequently pose a challenge in the acute care setting are dementia and delirium. The inability to diagnose dementia or delirium appropriately can increase morbidity and mortality in this patient population.[1] It's important to understand dementia and delirium in detail, as well as having a firm grasp on diagnosis, causes, and treatment options. (See "Differentiating dementia and delirium.")

## Recognizing dementia

Dementia is a disease process most often associated with the elderly population. Approximately 10% of the population over the age of 65 and an estimated 60% over the age of 85 suffer some type of dementia.[2-4] It's estimated that over 4 million people in the United States have dementia with a projected increase to 9 million people by the year 2030.[5]

Dementia can be defined as a disease process with a progressive decline in cognitive behavior.[2-5] The decline occurs over months to years, affecting daily social and occupational interactions. The decline in cognition affects memory, learning, insight, abstract thinking, orientation, and language.[3]

There are various types of dementias with the three most common types being Alzheimer's disease (AD), Lewy body dementia, and vascular dementia.[4] AD will be discussed at length because of its prevalence in the acute care setting. The changes in memory and other cognitive deficits that develop with dementia will be discussed as they relate to AD since the deterioration in function is very similar with dementia of any type.

## Risk factors

The most common type of dementia is AD. The prevalence of AD is less than 1% of the population under the age of 65, 5% to 10% at age 65, and 30% to 40% older than 85 years of age with a prevalent risk doubling every 5 years in people between the ages of 65 and 85.[3,4]

The risk of developing AD can double or even triple in those whose immediate relatives (such as a mother, father, brother, or sister) are diagnosed with AD.[3,4] In families where early onset of the disease occurs (ages 40 to 60), it is believed that AD is inherited as a result of genetic autosomal dominant exposure.[3,4]

The late onset of the disease (after age 65) is now believed to be related to exposure to genotype apolipoprotein E. Although there has been a familial relationship associated with the presence of this genotype, it's still being studied and cannot be used as a definite link in diagnosing the presence of AD.[2]

Aside from age being the most important risk factor, other risk factors include a previous traumatic brain

Illustration by Jon Krause

**Differentiating dementia and delirium[17]**

| Feature | Dementia | Delirium |
|---|---|---|
| Onset | Slow, insidious | Acute, abrupt |
| Duration | Chronic, months to years | Brief, hours to days |
| Attention | Normal in early phases | Impaired |
| Consciousness | Clear | Fluctuates |
| Speech | Ordered, anomic/aphasic | Incoherent, disorganized |
| Alertness | Normal | Hypoalert, hyperalert, or variable |
| Affect | Labile | Labile |
| Orientation | Often impaired | Usually impaired |

injury, smoking, people with lower educational advancements, and age of the parents at the time of birth.[3-5] AD is also seen in twice as many women as men. AD is diagnosed by its clinical presentation as well as its pathophysiologic changes. There are various pathophysiologic changes within the brain that predispose certain people to AD. People with AD will have global atrophied areas of the cerebral cortex, especially within the frontal, temporal, and parietal lobes as well as loss of synapses, neuronal death, and the presence of neurofibrillary tangles and neuritic or senile plaques.[3,4]

## Diagnosing AD

In general, an early symptom of dementia of the Alzheimer's type is memory loss. It begins subtly, with the inability to recall recently learned information such as appointments or telephone numbers. People who are still actively employed may begin to develop difficulty in performing their duties at work (for example, with problem solving or organization skills).[4] Retired persons may have difficulty completing hobbies or playing games.

As the disease progresses, there may be repetitive speech/conversation and worsening aphasia. Visuospatial deficits develop, resulting in misplaced objects, getting lost, or impaired driving.[4] As AD worsens, the person will not only be unable to perform abstract thinking, but behavioral or psychiatric symptoms may develop, such as paranoia, delusions, and confused states. Wandering, combativeness, and inappropriate behavior (such as wandering around the neighborhood in the middle of the night in their pajamas) are examples of the behavioral changes that develop. Inability to perform self-care, incontinence, and not recognizing family and friends are also behaviors associated with advanced disease.

Diagnosing AD and other forms of dementia starts with having a deficit in memory and one other domain of cognitive function that affects social and occupational function. Obtaining a thorough history, as well as performing a mental status examination using the National Institute of Neurological and Communicative Diseases and Stroke/Alzheimer's Disease and Related Disorders Association's criteria, the Mini Mental Status Examination, or the Cognitive Capacity Screening Examination, will be useful in reaching a diagnosis of AD or other types of dementias.[4-6]

The Executive Clock-Drawing Task is an easy tool used to measure the loss of demonstrating understanding of complex concepts. In performing this test, the patient is instructed to draw a clock with its hands and face displayed showing a specified time. A score is given based on execution of the task. The lower the score, the more impaired the patient is. The second part of the test involves the healthcare examiner drawing a clock with a specified time and the patient being asked to copy it.[2,4] In diagnosing dementia, it's very important to include checking labs (such as complete blood cell count, thyroid studies, vitamin $B_{12}$ level, electrolytes, blood urea nitrogen/creatinine, urinalysis, liver function studies, and HIV test) and performing some brain imaging studies such as computed tomography scan (CT), magnetic resonance imaging (MRI), or positron emission tomography scan in order to rule out possible metabolic disorders, blood vessel diseases, or brain tumors.[3,4]

## Treatment options

Although there is no cure for dementia, there are various pharmacologic and nonpharmacologic ways to treat the disorder. Some pharmacologic treatments consist of acetylcholinesterase (AChE) inhibitors and a *N*-methyl-D-aspartate (NMDA) receptor antagonist. These are considered memory-enhancing medications thought to slow the rate of deterioration in intellect and cognition.[5]

The most common medication prescribed to patients with AD is donepezil (Aricept). It's been approved for treatment of mild-to-moderate AD and has shown to have significant improvement in cognition. However, there is no evidence that has proven donepezil to be effective with long-term use. Donepezil is dosed daily at

5 to 10 mg given orally. The half-life is approximately 70 hours.[4] Other AChE inhibitors include tacrine (Cognex), rivastigmine (Exelon), and galantamine (Reminyl). The only NMDA receptor antagonist approved for use is memantine (Namenda). Memantine is approved to treat moderate-to-severe AD. It's given twice a day in divided doses of 60 to 80 mg with a half-life of approximately 60 to 80 hours.[4] Memantine has no significant effects on AChE inhibitor, and therefore can be used concurrently with them.[4]

Other medications used in some patients who have AD worth mentioning include various psychotropic drugs to manage the behavioral changes associated with dementia such as depression and agitation. Antipsychotic drugs, benzodiazepines, and various antidepressants may also be used in conjunction with other AD pharmacology treatments. If antipsychotic agents are prescribed, extreme caution should be taken, as the risk of worsening psychotic behaviors is high. With the potential for weight gain and new onset of diabetes, use of antipsychotics in this patient population can increase their risk of stroke.[18]

Patients on AChEs and antipsychotics are at a higher risk of developing extrapyramidal symptoms.[19,20] Another rare but potential adverse reaction to these types of antipsychotics is malignant neuroleptic syndrome.[19,20] Therefore, the use of antipsychotics in this patient population should be avoided when possible because the risks outweigh the benefits. Some nonpharmacologic measures used are focused on decreasing anxiety and allowing patients to have some sense of independence.[19,20]

## Definition of delirium

Delirium can be defined as an acute state of mental confusion resulting in impairment in cognition and behavior as manifested by fluctuating levels of alertness and attention along with sleep-wake cycle disturbances and emotional lability.[1,2,5,7-9] It's estimated that approximately 10% to 30% of all confused states are reversible as long as the underlying cause is identified and treated appropriately.[4,5] In the acute care setting, delirium occurs in 6% to 30% of the hospitalized population with 7% to 52% being postsurgical patients and up to 16% being elderly.[5] Of the hospitalized elderly population over the age of 65, it has been reported that delirium has occurred in 10% to 40% of these patients on admission with another 25% to 60% occurring after admission to the hospital.[2]

The occurrence of delirium in the elderly population has been associated with increased mortality rates estimated as high as 65%, especially in those patients whose cause for delirium has gone undiagnosed.[2] It's very important to search for the cause delirium can increase the risk for seizures, skin breakdown, venous thromboemboli, pneumonia, and head injuries such as subdural hematomas or hip fractures resulting from frequent falls out of bed.[4] Complications can also arise from dislodged tubes (such as central lines, arterial lines, endotracheal tubes, Foley catheters, or ventriculostomies). These potential complications can lead to prolonged hospital stays and increased mortality.[4,21]

Patients suffering from delirium will display disturbances in cognition and behavior as manifested by difficulty being aware of the surrounding environment. There is often impairment in the ability to focus or sustain attention resulting in being distracted easily.[1] Short-term memory deficits, disorientation, and language deficits are often noted. Hallucinations, misinterpretations, paranoia, and illusions are often associated with delirium.

Delirium can be divided into two subtypes based on psychomotor activity and levels of arousal. (See "Types of delirium.") The first type is hyperactive delirium where the patient is very agitated or hyperalert. This

### Types of delirium

| Hyperactive delirium | Hypoactive delirium |
|---|---|
| Physically/verbally aggressive, agitated, wanders | Lethargic, somnolent, withdrawn, decreased response to stimuli |
| Physically hyperactive | Physically hypoactive |
| Very alert to stimuli | Clouded, inattentive, slow to respond |
| Labile mood | Inarousable or requires aggressive stimuli to arouse |

**Mixed**

Evidence of both hyperactive and hypoactive behavior

## Medications that may impair thinking ability

**Antibiotics**
Cephalexin, cephalothin, metronidazole, ciprofloxacin, ofloxacin

**Anticonvulsants**
Phenytoin, valproic acid, carbamazepine

**Anticholinergics**
Scopolamine, atropine, meclizine, benztropine

**Antihistamines**
Diphenhydramine

**Antihypertensives**
Propranolol, metoprotol, atenolol, verapamil, methyldopa, prazosin, nifedipine

**Antiparkinson's drugs**
Levodopa, pergolide mesylate, bromocriptine

**Antiarrhythmics**
Disopyramide, quinidine, tocainide

**Tricyclic antidepressants**
Amitriptyline, imipramine, desipramine

**Selective serotonin reuptake inhibitors**
Fluoxetine

**Antipsychotics**
Haloperidol

**Benzodiazepines**
Alprazolam, clonazepam, diazepam, triazolam, lorazepam

**Analgesics**
Morphine, codeine, meperidine

**Decongestants**
Pseudoephedrine

state is often associated with behaviors such as hallucinations, delusions, disorientation, and agitation. The second type is hypoactive delirium where the patient is lethargic or hypoalert.[1,8,9] Hypoactive forms of delirium are more often associated with confusion and sedation without the hallucinations and delusions. Patients can also experience a mixed delirium where they demonstrate both types of behaviors.

Emotional lability is often associated with delirium. Patients can experience various emotional disturbances that may constantly change. For example, these patients may be angry, combative, agitated; or they may be depressed, sad, or euphoric. Changes in their emotional state are often unpredictable and can be drastic.[1]

## What are the risks?

Aside from advanced age, a common risk factor for delirium includes patients going through alcohol or drug withdrawal. The DSM-IV-TR criteria for delirium divides the possible causes into four groups:

- due to a general medical condition
- due to a substance use or withdrawal
- due to multiple etiologies
- due to unspecified etiology.[1]

Patients with comorbidities such as chronic obstructive pulmonary disease, hypertension, and stroke can increase the risk for delirium.[8] Infections, metabolic disorders, pain, fractures, and hypoxia can also trigger delirious behavior.

Medications of various types often pose the risk of causing delirious behavior. It has more commonly been shown that patients being treated with opiates or other psychoactive drugs increase the risk for delirium. Experts have discovered that benzodiazepines, narcotics, and other psychotropic drugs are associated with a 3 to 11 times increased risk of developing delirium.[9,10,11] (See"Medications that may impair thinking ability.")

## Diagnosing delirium

Diagnosing delirium may be challenging, as the initial history may be difficult to obtain secondary to the patient's acute confused state. Finding the underlying cause of the delirious behavior is the ultimate goal. A thorough physical assessment is vital and should include assessment of vital signs including temperature, any signs of meningeal irritation (nuchal rigidity, photophobia, nausea/vomiting, and so forth), signs of dehydration, as well as a complete assessment of all systems.[12] A complete evaluation of medications and an assessment of the patient's level of pain and management of pain are important. Uncontrolled pain can cause delirium and inappropriate pain management can cause delirium.[8]

Certain environmental triggers can also cause delirium. For example, elderly patients who are in the ICU for several days may become delirious from sleep deprivation and sensory overload from all the alarms from the monitors and ventilators. The constant stimulation and inability to decipher days from nights will often trigger an "ICU psychosis," resulting in delirious behavior.[8,13,16,21-23] Elderly patients who are admitted to the hospital are

taken out of their normal, daily routine. This interruption can result in behavioral changes such as sundown syndrome. Sundown syndrome results in an increase in confusion and agitation during nighttime hours.[14,16,21-23]

Thorough evaluation should also include a full laboratory panel including, but not limited to, electrolytes, arterial blood gases, complete blood cell count, vitamin $B_{12}$ and folic acid levels, lactate levels, liver function studies, urinalysis, electrocardiogram, and chest X-ray. CT scan or MRI of the brain should be considered if all other causes are ruled out. Other studies to consider include HIV testing to rule out possible toxoplasmosis or other HIV-related cerebral injuries, toxicology screening to rule out illicit drug or alcohol intoxication and electroencephalogram to rule out possible seizure activity.[12]

Various screening tools can be used in diagnosing delirium. The Clinical Assessment of Confusion A, the Confusion Rating Scale, the Confusion Assessment Method (see table), the Delirium Rating Scale, the Memorial Delirium Assessment Scale, and the Neelon and Champagne Confusion Scale are among many tools used in assessing patients with acute confusional states.[1,13,23] All of these tools are made up of various observational items used to measure the level of delirium. These tools can be used by both nurses and physicians in diagnosing and evaluating delirium.

## Treatment for delirium

Just as with dementia, there are various pharmacologic and nonpharmacologic methods of treating delirium. Because delirium is often a temporary disorder, finding the underlying cause and treating it is key. However, because delirium may result in life-threatening injury, treating the delirium may occur before the cause is found. Assessing patients' risk for falling, wandering, or harming self or others is important in deciding best treatment options.[1] Combative and physically dangerous patients may require one to one monitoring continuously. Restraints may be considered if the patient is at risk for physical harm.

Maintaining a quiet environment with minimal distractions and a routine schedule may be helpful to these patients. Providing the patient with their eyeglasses or hearing aids is important in their daily function. Orienting the patient to day and time or having a clock visible to the patient may be helpful. Consider clustering care on night shift to allow patients longer periods of uninterrupted sleep.

Family's involvement in the care of the patient is often encouraged as a familiar face may reduce the amount of

### The Confusion Assessment Method Instrument

1. **Acute Onset.** Is there evidence of an acute change in mental status from the patient's baseline?

2A. **Inattention.** Did the patient have difficulty focusing attention, for example, being easily distractible, or having difficulty keeping track of what was being said?

2B. (If present or abnormal) Did this behavior fluctuate during the interview, that is, tend to come and go or increase and decrease in severity?

3. **Disorganized thinking.** Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?

4. **Altered level of consciousness.** Overall, how would you rate this patient's level of consciousness?
   Alert—normal
   Vigilant—hyperalert, overly sensitive to environmental stimuli, startled very easily
   Lethargic—drowsy, easily aroused
   Stupor—difficult to arouse
   Coma—unarousable
   Uncertain

5. **Disorientation** Was the patient disoriented at any time during the interview, such as thinking that he or she was somewhere other than the hospital, using the wrong bed, or misjudging the time of day?

6. **Memory impairment.** Did the patient demonstrate any memory problems during the interview, such as inability to remember events in the hospital or difficulty remembering instructions?

7. **Perceptual disturbances.** Did the patient have any evidence of perceptual disturbances, for example, hallucinations, illusions or misinterpretations (such as thinking something was moving when it was not)?

8A. **Psychomotor agitation.** At any time during the interview did the patient have an unusually increased level of motor activity such as restlessness, picking at bedclothes, tapping fingers or making frequent sudden changes of position?

8B. **Psychomotor retardation.** At any time during the interview did the patient have an unusually decreased level of motor activity such as sluggishness, staring into space, staying in one position for a long time or moving very slowly?

9. **Altered sleep-wake cycle.** Did the patient have evidence of disturbance of the sleep-wake cycle, such as excessive daytime sleepiness with insomnia at night?

Source: Inouye S, van Dyck C, Alessi C, Balkin S, Siegal A. Horwitz, R. Clarifying confusion: The confusion assessment method. *Ann Intern Med.* 1990;113(12):,941-948.

agitation.[1] However, the opposite often holds true as well. Family's presence can worsen the patient's behavior. Therefore, the bedside nurse will have to evaluate the effectiveness of family involvement on a case by case basis. Having the family bring in certain special pictures or objects may be helpful in creating a more familiar environment for the patient.[1]

If nonpharmacologic methods are not effective in managing delirium, medication therapy may be warranted. Antipsychotics are the medication of choice in treating delirium. Researchers performed a double-blind, randomized, prospective study looking at the effectiveness of haloperidol versus chlorpromazine and lorazepam in the treatment of delirium. The study showed that there was a significant improvement in symptoms of delirium with the treatment of haloperidol.[15]

It's important to routinely check electrocardiograms because antipsychotic medications may prolong the QT interval (greater than 450 milliseconds) resulting in torsade de pointes, ventricular fibrillation, and death.[1] Extrapyramidal symptoms are also associated with the use of antipsychotics and therefore, close attention should be made when assessing patients. Other atypical antipsychotics that are now being used more frequently are olanzapine (Zyprexa), ziprasidone (Geodon), and quetiapine (Seroquel). As previously mentioned, these types of antipsychotic agents have a rare but potentially lethal risk of causing malignant neuroleptic syndrome.[19,20] Therefore, extreme caution should be taken when administering these medications.

Based on the study mentioned earlier, lorazepam was shown to have the least effective response in treating delirium.[15] However, benzodiazepines, such as lorazepam, have been shown to be the treatment of choice for delirium related to alcohol or benzodiazepine withdrawal.[1] Benzodiazepines are associated with sedation and possible respiratory depression, and therefore must be used with caution especially in the neurologically-impaired patients and elderly patients. The use of an antipsychotic medication in combination with a benzodiazepine has shown some benefit in treating delirium. Results have shown less side effects and shorter duration of treatment of delirium in special patient populations (such as cancer or AIDS patients).[1]

**Family's presence can worsen the patient's behavior.**

Other considerations include pain management. Is the patient's pain being managed with the right medication, dose, and frequency of administration? If the patient's cause of delirium is the result of a metabolic disorder, are electrolytes being replaced or should the patient receive vitamins if there is a vitamin $B_{12}$ deficiency?

## Nursing considerations

Although dementia and delirium are two different disease processes with very similar clinical presentations and treatment in the acute care setting, it's important to understand the difference. Being able to differentiate permanent, chronic behavior and cognitive dysfunction, versus an acute, reversible confusion state is important in providing the care necessary for this patient population. Maintaining focus on providing a safe and comfortable environment is important in the bedside nurse's care plan.

Although caring for patients with these types of behavioral and cognitive issues can be very physically and emotionally exhausting for the bedside nurse, it's important to understand that this behavior isn't intentional and therefore, shouldn't allow personal resistance affect the care needed to this patient population. To prevent nursing burn out or potential patient neglect, consider limiting the time assigned to an agitated patient to 4 hours at a time or rotate assignments so that the same nurses aren't always caring for the same agitated patients. Going into a patient assignment with an open mind and clear understanding of the patient's condition is just as important to the patient as it is to the nurse. Maintaining positivity and professionalism despite having a challenging patient separates the good nurses from the great ones.

## Differentiating the two

Dementia versus delirium can often be difficult to differentiate. Understanding the difference between the two types of behavior/cognitive disorders and how to diagnose and treat each is imperative in preventing the increase risk of morbidity and mortality in this patient population. Maintaining or achieving a safe and acceptable quality of life is important, not only to the patient, but also to the family, society, and the health care profession. M

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The author has disclosed that she has no significant relationship with or financial interest in any commercial companies that pertain to this educational activity.

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