Delirium: The Bedside Nurses Role in Prevention, Diagnosis and Treatment;

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Delirium: The Nurse's Role in Prevention, Diagnosis, and Treatment

Dwight D. Faught

Delirium is an acute change in mental status typically caused by a medical condition. Delirium complicates care, increases safety risks, and has a negative impact on patient outcome. By identifying mental status changes early, the nurse is in a strategic position to prevent delirium in 30%-40% of at-risk patients. An interdisciplinary team approach can prevent, diagnose, and treat delirium to improve safety, reduce cost of care, and optimize patient outcomes.

Delirium first was used as a medical term in the first century AD to describe mental disorders occurring during fever or head trauma (Fong, Tulebaev, & Inouye, 2009). Delirium is an acute, transient, and usually reversible change in mental status, which has potentially life-threatening consequences for patients. Typically, delirium presents as a fluctuating disturbance in attention, cognition, and consciousness which significantly impacts prognosis and complicates the delivery of care (Sweet, 2009). The incidence of delirium in the community is about 1%-2%; however, 14%-24% of general hospital admissions are related to alteration in mental status. The risk of delirium is higher in specific populations, including patients receiving post-surgical, intensive, sub-acute, and palliative care. For patients over age 65 in the intensive care setting, the incidence of delirium increases to 87% (Fong et al., 2009).

Nurses should understand the impact of delirium on patient care and patient outcomes. Frequently, patients with delirium have increased risk for a poor outcome when compared with patients who do not develop delirium while hospitalized. Delirium has been associated with an increased risk of death, longer hospital stays, and cognitive deficits. Patients with delirium also more frequently require discharge to long-term care facilities (Holroyd-Leduc, Khandwala, & Sink, 2010). In the inpatient setting, patients with delirium have a higher rate of functional decline and typically exhibit unsafe behaviors that require greater intensity of nursing care (Flagg, Cox, McDowell, Mwose, & Buelow, 2010). In the intensive care setting, even after adjusting for severity of illness and diagnostic-related group classifications, delirium is associated with an increase in the number of ventilator days, length of stay, and mortality. Patients experiencing delirium in an intensive care setting can continue to experience a decrease in function up to 6 months after discharge (Flagg et al., 2010). For most patients, symptoms last for at least 7 days, with some having symptoms for 6-8 weeks; while symptoms are typically gone by discharge from the hospital, as many as 15% of patients remain symptomatic of delirium for up to 6 months (Sweet, 2009). The increased cost of care for patients with delirium is estimated to be $2,500 per patient or $6.9 billion annually to Medicare (O'Mahony, Murthy, Akunne, & Young, 2011). In addition to falls and diabetes, delirium is a significant cause for increasing cost of care and is related directly to an additional cost of more than $60,000 per patient per year in the United States (Cerejeira & Mukaetova-Ladinska, 2011).

Delirium is preventable in about 30%-40% of patients (Fong et al., 2009). Nurses are in an ideal position to improve detection rates, manage delirium, and provide necessary care to patients with delirium (Cerejeira & Mukaetova-Ladinska, 2011). Nurses can help identify at-risk individuals and intervene to reduce risk whenever possible. Although a typical nursing assessment may not identify cognitive changes indicative of delirium, good observation skills in the presence of a strong therapeutic relationship will allow nurses to identify acute changes in attention or consciousness which are hallmark signs of delirium, especially in elders (Day, Higgins, & Keatinge, 2011).

Etiology

A number of risk factors contribute to the development of delirium (see Table 1). Many factors can be mitigated to reduce risk. For sensory impairment, encouraging the use of eye glasses and hearing aids while in the hospital can improve orientation and safety. To protect invasive lines (e.g., indwelling uri-

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TABLE 1.
Delirium Clinical Risk Factors

- Age > 75
- Baseline cognitive dysfunction, including a lower education level
- Male sex
- Vision or hearing impairment
- Decreased functional ability
- Use of IV lines, bladder catheters, or physical restraints
- Severe medical illness: Infections, hip fractures, hyperthermia, hypothermia, hypotension, hypoperfusion, hypoxia or anoxia, malnutrition and nutritional deficiencies, metabolic disorders, and more
- Exogenous substances: Medication, polypharmacy, psychoactive medications (including over-the-counter medications), addition of three or more medications
- Substance abuse and withdrawal
- Heavy metal poisoning
- Toxins
- Sleep deprivation
- Poorly managed pain
- Over sedation
- Environment
- Emotional distress

Source: Fong et al., 2009

nary catheter, intravenous lines), the nurse should seek the least confining method of restraint to meet patients' medical needs and improve independence. Encouraging a normal sleep-wake cycle and providing access to natural light also helps patients with orientation and reduces confusion. Adequate assessment and treatment of pain improves mobility and enables patients to participate actively in their care. Other factors, like decrease in functional status and emotional stress, can be reduced by engaging family when possible to help with the care of their loved ones (Sweet, 2009). Identifying patients with clinical risk factors for delirium is the first step to implementing prevention strategies.

Older adults are particularly vulnerable due to sensory deficits, including hearing and vision changes, possible early cognitive changes, and changes in functional status. When combined with other risk factors in the hospital environment (e.g., changes in sleep patterns, pain, sedation, polypharmacy), these changes contribute to adverse outcomes independently or cumulatively in ways that substantially increase the risk of developing delirium. Because risk factors for delirium associated with hospital care are controllable, the presence of delirium can be considered a window into the quality of care provided. Rarely is delirium caused by a single factor (Alagiakrishnan et al., 2009).

Pathophysiology

Delirium can have many different etiologies and presentations; one single mechanism may not encompass the entire syndrome (Sweet, 2009). Evidence suggests drug toxicity, inflammation, and acute stress responses contribute to disruption of neurotransmission and ultimately to the symptomology of delirium (Fong et al., 2009). Neuroimaging studies of the brain of an individual experiencing delirium reveal generalized disruption in higher cortical function, with dysfunction in the prefrontal cortex, subcortical structures, thalamus, basal ganglia, frontal and temporoparietal cortex, fusiform cortex, and lingual gyri, particularly on the nondominant side. Multiple neurotransmitters are involved in delirium. They include acetylcholine, dopamine, glutamate, gamma-aminobutyric acid (GABA), and serotonin, and may involve oxidative metabolism, alterations in the blood brain barrier, or an elevation in ammonia (Sweet, 2009). Neuropeptides, catecholamines, cortisol, and inflammatory markers have been implicated in delirium pathophysiology (Cerejeira & Mukaetova-Ladinska, 2011).

Nursing Assessment

The clinical presentation of delirium occurs in three distinct subtypes: hyperactive, hypoactive, or mixed (Rathier & Baker, 2011). Compared with hyperactive or mixed delirium, hypoactive delirium often is difficult to identify and diagnose because of the similarity to depression. Identification of affected patients requires careful assessment to detect changes in concentration, reduced mobility or motor activity, changes in appetite, or social withdrawal (Cerejeira & Mukaetova-Ladinska, 2011). Because nurses provide around-the-clock care for the patient, they are key resources for identifying early changes in the patient's mental status in the medical-surgical setting. Changes may be rapid and fluctuate over time, with alteration in concentration, attention, and wakefulness (Rathier & Baker, 2011). Often these changes will be prominent while patients are performing activities of daily living.

One of the first changes the nurse may identify in a patient is alteration in consciousness and the ability to pay attention. In addition to a change in the level of consciousness or clouding of consciousness; a reduced ability to focus, sustain, or shift attention; a reduced clarity of awareness of the environment; and disruption in the normal sleep cycle may be noted. The individual may be lethargic or hyperactive, have difficulty following a conversation or answering questions, and have memory changes, disorientation, delusional thinking, or language disturbances. Some patients also may have perceptual disturbances, including misinterpretations, illusions, and hallucinations. Often these misperceptions are visual and the older person may respond emotionally and behaviorally to their content, resulting in behaviors that seem inappropriate or disconnected to staff, families, or others (Day, Higgins, & Keatinge, 2011). Sleeping and eating patterns become erratic and judgment becomes grossly distorted with impaired insight (Sweet, 2009).

When caring for patients at risk for developing delirium, nurses need to perform extensive assessments. Just watching for signs of

disorientation lacks sensitivity and specificity, and can lead to underrecognition of delirium. Nurses should conduct an extensive health history, possibly including information from family when the patient has difficulty with concentration or memory. Preexisting conditions, such as cognitive impairment, sensory losses (hearing and sight), alcohol and tobacco use, drug withdrawal, and increased age, can contribute to increased risk for dementia (Schreier, 2010). All should be addressed in an initial admission assessment.

Delirium can be confused with signs of early dementia in older patients. Delirium has an acute onset and fluctuates over hours or even minutes, with disrupted sleep patterns and possible hallucinations. Dementia develops over years, with a relatively stable yet chronic course; affected patients typically have a normal attention span and perceptions. However, subjective memory complaints similar to those found in newly diagnosed dementia can be found in delirium. After hospitalization, the need for long-term care has been associated with delirium in older adults (Fong et al., 2009).

The Mini-Mental State Exam (MMSE) was developed in 1975 as a brief, easily administered quantified measure of cognitive status in adults to identify changes in cognition over time. It has demonstrated validity and reliability in psychiatric, neurologic, geriatric, and other medical populations (Folstein, Folstein, & McHugh, 1975). The MMSE is the most commonly used cognitive assessment tool in primary and specialist settings (Cacho et al., 2010). In contrast, the Clock Drawing Test (CDT) is a quick screening tool for dementia in the primary care setting. However, neither the MMSE nor the CDT is adequate for the diagnosis of dementia; use of the MMSE with the addition of the CDT can help differentiate patients with a cognitive impairment from those with mild Alzheimer's disease in the primary care setting (Cacho et al., 2010).

A number of other diagnostic tools are available which can be used to screen for delirium in the acute care setting. Three tools include the Confusion Assessment Method (CAM), the Delirium Observation Screening (DOS), and the Neelon and Champagne Confusion Scale (NEECHAM). The CAM, which was created by the Hartford Institute for Geriatric Nursing, was designed as a scale completed at the patient's bedside in about 5 minutes to assess for delirium (Waszynski, 2012). The CAM has been validated in a number of different settings, including intensive care, and has a high degree of sensitivity (94%-100%) and specificity (89%-95%) (Waszynski, 2012). One drawback with this instrument is that it does not measure the severity of disease (Sweet, 2009; Waszynski, 2012). The DOS, by contrast, was designed to measure the presence and severity of delirium. Completion of this nursing assessment tool does not require special training in gerontology. The DOS has been validated as an effective tool for identifying delirium (Scheffer, van Munster, Schuurmans, & de Rooij, 2010). According to Detroyer and colleagues (2014), the DOS has been used by nurses in numerous hospital populations and is considered reliable and valid for detecting and measuring severity of delirium through observation during routine care. The NEECHAM also can be used to assess for delirium and the severity of cognitive impairment. The NEECHAM is administered by nurses and has demonstrated sensitivity of 95%. The predictive value and the negative predictive value were 79% and 97% respectively. The diagnostic capability in patients undergoing cardiac surgery was lower than in other patient groups (Rompaey et al., 2008).

TABLE 2.
Prevention and Intervention Strategies

- Provide easy-to-read clocks and calendars.
- Get patient out of bed early and often; consider physical therapy, and eliminate restraining devices, including early removal of Foley catheters and IV fluids.
- Maintain hydration and electrolyte imbalance.
- Provide adequate pain management.
- Encourage use of eyeglasses if needed.
- Encourage use of hearing aid and ensure batteries are charged if available.
- Promote nutritional status by encouraging appropriate use of dentures, providing good mouth care, and using supplements as indicated.
- Provide good skin care, prevent urinary tract infections and other infections, monitor elimination and prevent constipation, provide appropriate anticoagulation therapy, and provide oxygen as indicated.
- Promote good sleep hygiene by providing uninterrupted time for sleep, noise reduction, and maintenance of day-night rhythms.

Source: Alagiakrishnan et al., 2009

Prevention

Prevention is key to reducing the incidence of delirium in 30%-40% of patients at risk (see Table 2). Environmental factors can be altered to reduce delirium. Strategies include reducing noise, changing light based on the time of day, having visible 24-hour clocks, and providing patients with their personal possessions (Schreier, 2010). Efforts to provide consistent routines and continuity of staffing help the patient by having familiar nurses who can identify changes more easily. Use of volunteer sitters when indicated can help provide for patient safety. Involvement of the family could promote a sense of well-being. However, if the delirium

is of the hyperactive type and family visits increase patient agitation, visits should be limited. Avoiding bed and room changes also can help reduce the risk of delirium. Limiting the use of restraints or restraining devices (e.g., urinary catheters) aids and encourages patient mobility. The call bell, personal items, glasses, and hearing aids must be within reach at all times. Assessing hydration and constipation by monitoring fluid intake and output, assessing for hypoxia, optimizing oxygen saturation, and promoting a quiet environment and good sleep hygiene are important interventions (Holroyd-Leduc et al., 2010).

Early recognition of delirium enhances the effectiveness of intervention. Once delirium occurs, the major focus of nursing care is to keep the patient safe. A thorough assessment is conducted to identify the cause and initiate treatment (Schreier, 2010). Education and support for the patient and family are important as a variety of tests may be ordered in an effort to find the underlying etiology for the delirium.

Diagnosis and Treatment

Once delirium has been identified, the health care provider may order other diagnostic procedures to identify an underlying medical cause. In some instances, delirium may be the only initial manifestation of underlying illness (Sweet, 2009). Testing to identify a cause should be individualized and limited initially to a blood chemistry (assess electrolyte, glucose, calcium, renal, or hepatic abnormality) and a complete blood count to assess for leukocytosis, possible infection, or anemia (Sweet, 2009). The invasiveness and intensity of diagnostics depend on the complexity or severity of disease.

The diagnosis and treatment of delirium require a multidisciplinary effort to identify at-risk patients, implement prevention strategies, diagnose the disorder, identify and treat the cause, and maintain patient safety. In addition to the nurse, this team should include a health care provider, psychiatrist, pharmacist, case manager/social worker, and patient representative (O'Mahony et al., 2011). Other important members of the team include the physical therapist, occupational therapist, dietitian, and geriatrician. They are critical to the identification of a cluster of nonspecific signs and symptoms within an acute time frame that links the onset or exacerbation of a general medical condition (and or substance use) to a change in mental status (Cerejeira & Mukaetova-Ladinska, 2011).

Pharmacological Intervention

Treatment of agitation and confusion is based on the subtype of delirium. Any drug chosen to treat delirium should be started at the lowest possible dose. Symptomatic treatment for agitation might include haloperidol (Haldol®) 0.5-1 mg by mouth or intramuscular injection. Other options include risperidone (Risperdal®) 0.5 mg by mouth twice daily, olanzapine (Zyprexa®) 2.5-5 mg by mouth daily, or other atypical antipsychotics. Occasionally benzodiazepines, such as lorazepam (Ativan®) 0.5 mg-1 mg by mouth or intravenous injection, may be used as a last result for severe agitation as it works more quickly. However, these drugs should be used with caution, especially in older adults, as they can worsen confusion causing sedation, complicating treatment, and increasing the risk of falls (Fong et al., 2009).

Conclusion

Patients with delirium have increased risk for a poor outcome when compared with patients who do not develop delirium while hospitalized. Delirium has been associated with an increased risk of death, longer hospital stays, and cognitive deficits. Patients with delirium also more frequently require discharge to long-term care facilities (Holroyd-Leduc et al., 2010). Because delirium negatively impacts the prognosis for

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Objectives

This continuing nursing educational (CNE) activity is designed for nurses and other health care professionals who are interested in delirium in the medical-surgical setting. For those wishing to obtain CNE credit, an evaluation follows. After studying the information presented in this article, the nurse will be able to:

1. Describe the etiology and pathophysiology of delirium.
2. Discuss nursing assessment strategies for delirium.
3. Explain prevention, diagnosis, and treatment considerations for patients with delirium.

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hospitalized patients and complicates the provision of nursing care in any setting, prevention should be emphasized. Nurses need to be knowledgeable concerning signs and symptoms, and identify patients at the greatest risk for delirium. Early identification will allow nurses to take measures to maintain orientation, mobility, and cognition, and ensure sleep, good nutrition, hydration, and pain management. MSN

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