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PATIENT SAFETY NETWORK

Mismanagement of Delirium

May 1, 2016
Merrilees J, Lee KP. Mismanagement of Delirium. PSNet [internet]. 2016.
https://psnet.ahrq.gov/web-mm/mismanagement-delirium

The Case

An 85-year-old man with early stage vascular dementia fell on the sidewalk and fractured his leg. Although fitted with a cast at a regional hospital, the patient was not able to walk independently. He was given crutches and instructions for no weight-bearing on the injured leg. He was admitted to a skilled nursing facility for physical therapy to establish mobility and for assistance with bathing and dressing. His wife stayed with him most of the day during first 2 days.

Prior to this event, the patient lived at home and was independent in activities of daily living. He used distance and reading glasses, eye drops 3 times daily, and had hearing aids. Over the previous year, he experienced nondisturbing visual hallucinations (e.g., bird in the tree, squirrel on the lawn, bug on the floor). He had disturbed nighttime sleep and occasionally got up at night, showered, and dressed, before asking his wife the time. He experienced frequent daytime sleepiness with varying levels of concentration. He had a shuffling and sometimes propulsive gait, and he fell easily.

On day 3 in the skilled nursing facility, prior to arrival of his wife, the patient became delirious and agitated. He waved his crutch to keep staff at a distance, threatened to kill them if they approached, and knocked over furniture. The sheriff was called. The patient was taken to the hospital emergency department (ED). The patient spent his first night in the ED hallway with his wife and daughter alternately by his side. On day 2 of hospitalization, he was transferred to a hospital room and was visited by a psychiatrist. That night, the patient became delirious and threw a cup of water at a sitter. On day 3, the patient was lucid and explained he thought he been captured and was trying to escape. He expressed remorse. The psychiatrist recommended transfer to the geriatric-psychiatry ward for better patient management, and the patient's wife accepted the recommendation without understanding the implications. At the time of the transfer, the patient had been immobile for 3 days, and he had constipation, mild dehydration, and pain.

Over the next 2 days, the wife and daughter became concerned about their loved one's care and requested alternate ward placement that allowed a 24-hour family caregiver at the bedside. They further requested that the staff address the patient's mobility needs and work to eliminate some of the delirium triggers. The psychiatric intern was called and explained to the patient's family that the patient has been involuntarily

committed, and no change in placement or treatment would be considered. The intern further explained that the primary medical concern was the patient's behavior, not his mobility. The family requested to see the intern's supervisor, who spoke to the family by telephone and confirmed the intern's statement. The family then called the patient's primary care physician, who deferred to the specialists on the overall plan, but requested that the patient's daughter be allowed to stay with the patient overnight. The ward nurse refused the request and the wife and daughter were escorted from the locked ward at 9:30 PM.

The patient continued to experience nighttime agitation and was aggressive toward staff during nights 3–5, which led to the use of restraints. Ward staff extended the daytime visiting hours for the family, 8 AM–10 PM, but continued to refuse the family's requests to stay at night to provide comfort and reassurance. Medical students rounded on days 5 and 6 and administered mini-mental status exams, but no in-depth medical history or dementia evaluation was administered. The patient continued to have constipation, mild dehydration, increased leg pain, and ingrown toenail pain. Risperidone was administered to control agitation and hallucinations on day 5. On day 6, the patient became aphasic, exhibited slurred speech, moaned with discomfort, occasionally cried "spinning," and exhibited breakdown on the skin of his heels and buttocks. On day 8, the patient's wife called the hospital legal department to file a complaint. At that point, the hospital allowed the patient's daughter to spend the night. The patient continued to act out dreams, but having a family caregiver at the bedside prevented escalation to aggression.

The patient was released back to the skilled nursing facility on day 9, with a diagnosis of Lewy body dementia. The risperidone was discontinued several months later by a new geriatrician in the skilled nursing facility. Since the precipitating incident, the patient has lost 40 lbs. He now has limited speech, limited mobility, and tardive dyskinesia, and he is dependent for all activities of daily living.

The Commentary

by Jennifer Merrilees, RN, PhD, and Kirby Lee, PharmD, MA, MAS

This case highlights the challenges and pitfalls of managing delirium in patients with dementia. Delirium, an acute state of confusion, is a significant problem among hospitalized patients with dementia. Delirium affects as many as 50% of hospitalized older adults and is associated with substantial health care costs.(1) Patients with dementia are especially vulnerable to delirium. Such patients are at high risk for negative outcomes including accelerated and permanent cognitive decline, prolonged hospitalization, re-hospitalization, nursing home placement, and death.(2,3) Although clinical guidelines and evidence-based reviews are available (4-6), managing delirium continues to be challenging. This case illustrates how mismanagement of delirium can lead to poor quality of life, functional decline, and profound negative health outcomes.

Timely and accurate evaluation is critical in caring for patients with dementia. By history, this patient exhibited features of parkinsonism (shuffling gait and falls), disturbed nighttime sleep, daytime sleepiness, fluctuating cognition, and visual hallucinations. These symptoms suggest primarily Lewy body dementia (LBD) with additional vascular factors. Throughout this case, the patient experienced significant delays in being evaluated. Early review of the patient's medical history and symptoms should have been conducted. If soon after the patient was admitted with the leg fracture it was also known he had LBD, the clinical team

may have realized that antipsychotics, particularly risperidone and olanzapine, might not be well tolerated.(7)

An important first step in managing delirium is to recognize it. Hallmark signs include an abrupt change in cognition, variability in level of consciousness, and disrupted sleep–wake cycle.(4-6) In this case, the patient's sudden and abrupt behavioral changes were an indicator of delirium: on his third day at the SNF, he became agitated and combative. At this point, care should have focused on identifying potentially modifiable risk factors for delirium (Table 1). For example, given his visual and auditory impairments, without his glasses and hearing aids he was likely misinterpreting the staff's actions and his surroundings. Similarly, he had leg and toenail pain, and it is not clear if his pain was adequately managed. Furthermore, he was constipated and dehydrated, additional risk factors for delirium that were not addressed. Instead, the patient was transferred to the hospital emergency department, spending an entire night in the ED hallway before being admitted to a hospital room. On his third day of hospitalization, he continued to show evidence of delirium (fluctuating cognition and behavior) and the psychiatrist recommended that he be transferred to a geriatric-psychiatry unit.

Unfortunately, the staff response was in direct contrast to delirium guidelines (Table 2). Treatable risk factors for delirium were not addressed, and the patient was denied critical interventions to appropriately manage and treat delirium. At the time of his transfer to the geriatric-psychiatry unit, the patient had been immobile for 3 days. Physical activity was further inhibited by the use of restraints and antipsychotic medications. He was denied orientation and reassurance when staff prevented his family from staying with him, even though the presence of his daughter clearly calmed him down.

Behavioral symptoms provide insight into the experience of patients with dementia. Acting out physically was an important clue that the patient felt threatened, overwhelmed, and confused by the hospital experience. Staff focused on medications to manage the patient's behavior, rather than on treating contributing conditions or instituting supportive care. Although medications are often necessary in the treatment of delirium and dementia-related behaviors, nonpharmacological approaches should be considered first-line therapy because they are more likely to be effective in managing dementia-related behavioral symptoms while avoiding adverse effects from drug therapy.(8) An analysis of 23 trials provides evidence that nonpharmacological interventions targeting both patients and caregivers are comparable in efficacy to the use of antipsychotics and carry fewer risks.(9)

Moreover, the first step in pharmacological management of delirium is to discontinue or reduce doses of psychoactive drugs that could cause or worsen delirium. If nonpharmacological interventions have failed and contraindications to antipsychotics have been ruled out, haloperidol (preferred drug) or atypical antipsychotics—at the lowest effective dose with the shortest possible duration—can be considered for patients with severe agitation or psychotic symptoms. Adverse effects, such as dystonia, parkinsonism, neuroleptic malignant syndrome, orthostasis, and QT prolongation, should be monitored for closely.(4-6,10)

A final point to highlight in this case is the lack of a patient- and family-centered approach to care.(11,12) In this case, the family was denied critical input into the patient's care. The family could have been asked to identify shifts that they would be present with the patient to offer security, reassurance, and close supervision. This strategy could have prevented or reduced the use of medications and physical restraints.

Not until day 8 was the patient's daughter finally allowed to be with her father, and only after the family filed a complaint. Families provide critical knowledge about patients' preferences, habits, and routines, as well as how best to engage and communicate with them. This information is especially important for patients with dementia. Several initiatives have helped to define and operationalize what it means to provide patient- and family-centered care.(11,12) Clinical outcomes are improved when health care organizations and providers ensure patients and families are encouraged to participate in care planning and decision-making during hospitalization and discharge planning and when families are treated as allies in protecting patients' safety and well-being.(12)

The outcomes in this case might have been dramatically improved if clinical guidelines for delirium management had been followed, nonpharmacological interventions were implemented, and family had been allowed more active participation in the patient's care.

Take-Home Points

- An acute change in cognition and behavior in a patient with dementia requires immediate evaluation and treatment.
- The care of a person with dementia should be focused on prevention of delirium (for example, promotion of activity and mobility, correction of sensory deficits, treatment of pain, and promotion of healthy sleep–wake patterns).
- Dementia care should be provided within a patient- and family-centered model of care that focuses on the patient's needs, preferences, and values.
- Drugs that could cause or worsen delirium should be discontinued or doses adjusted.
- Pharmacological management should be conservative and used for severe agitation or psychotic symptoms, only after nonpharmacological treatments have failed and contraindications have been ruled out. If medications are used, it is important to use the lowest effective doses for the shortest possible duration, and patients should be monitored closely for adverse effects.

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Tables

Table 1. Risk Factors for Delirium.(5)

Potentially Modifiable Risk Factors
Sensory impairment (hearing or vision)
Immobilization (restraints or catheters)
Medications (e.g., narcotics, sedative hypnotics, anticholinergics, corticosteroids, polypharmacy, withdrawal of alcohol or other drugs)
Acute neurological diseases (e.g., acute stroke [usually right parietal], intracranial hemorrhage, meningitis, encephalitis)
Concurrent illness (e.g., infections, iatrogenic complications, severe acute illness, anemia, dehydration, fracture or trauma, HIV infection)
Poor nutritional status (e.g., deficiencies in vitamin B12, thiamine, or nicotinic acid)
Metabolic causes (e.g., hypoxia, hypoglycemia, hyperglycemia, electrolyte imbalances, hypercapnia, hepatic or renal impairment)

Surgery
Environment (e.g., admission to ICU)
Pain
Emotional distress
Sustained sleep deprivation
Nonmodifiable Risk Factors
Dementia or cognitive impairment
Advancing age (> 65 years)
History of delirium, stroke, neurological disease, falls or gait disorder
Multiple comorbidities
Male sex
Chronic renal or hepatic disease

Table 2. Assessment and Management of Delirium in Hospitalized Patients.(4,6)

Assessment	Actions
History	• Check baseline cognitive function and recent (within past 2 weeks) changes in mental status with family and staff • Recent changes in disorder, new diagnoses, complete review of systems • Review all current medications (prescription, nonprescription, dietary supplements, herbals and vitamins), particularly new medications and drug interactions • Review alcohol and sedative use • Assess for pain and discomfort (e.g., constipation, urinary retention, thirst)
Vital signs	• Temperature, oxygen saturation, glucose concentration • Take postural vital signs as needed
Physical and neurological examination	• Search for signs of occult infection, dehydration, acute abdominal pain, deep vein thrombosis, other acute illness • Assess for sensory impairments • Search for focal neurological changes and meningeal signs

Targeted laboratory assessment based on history and physical exam	• Consider complete blood count, urinalysis, electrolytes, calcium, glucose • Renal, hepatic, and thyroid function • Cultures of urine, blood, sputum • Concentrations of suspected drugs, ammonia, vitamin B12 or cortisol • Measure arterial blood gas • Electrocardiography • Chest radiography • Lumbar puncture (reserved for fever with headaches, signs of meningitis or suspected encephalitis)
Targeted neuroimaging	• Assess focal neurological changes (stroke can present as delirium) • Test for suspected encephalitis (for temporal lobe changes) • Assess patients with histories or signs of head trauma
Electroencephalography	• Assess for occult seizures • Differentiate psychiatric disorder from delirium
Management	**Actions**
Drug adjustments	• Reduce or remove psychoactive drugs (e.g., anticholinergics, sedatives, or hypnotics, opioids); lower dosages; avoid medications with as needed dosing • Substitute less toxic alternatives • Use nonpharmacological approaches for sleep, anxiety, agitation, and pain, including music, massage, relaxation techniques, physical therapy
Treat acute medical issues	• Treat problems identified in assessment (e.g., infection, metabolic disorders, constipation) • Maintain hydration and nutrition • Treat hypoxia • Treat pain (preferably with nonopioid medications)
Reorientation strategies	• Encourage family involvement; use companions as needed • Address sensory impairment; provide eyeglasses, hearing aids, and interpreters • Provide communication that best meets the person's abilities

Maintain safe mobility	• Avoid use of physical restraints and tethers • Ambulate patient at least 3 times daily; active range-of-motion • Encourage self-care and promote function
Normalize sleep–wake cycle	• Discourage napping and encourage exposure to bright light during the day • Foster uninterrupted periods of sleep at night • Provide nonpharmacological sleep protocol and quiet room at night with low-level lighting
Pharmacological management	• Reserve for patients with severe agitation that interrupts essential treatment (e.g., intubation) or severe psychotic symptoms after nonpharmacological interventions and treatment of acute medical issues has failed • Use lowest effective doses with shortest possible duration under close monitoring • Haloperidol 0.25–0.5 mg orally or intramuscularly twice daily is preferred; adverse effects include dystonia, akathisia, parkinsonism, neuroleptic malignant syndrome, orthostasis, QT prolongation • Atypical antipsychotics (e.g., quetiapine, risperidone, olanzapine); adverse effects include dystonia, akathisia, parkinsonism, neuroleptic malignant syndrome, orthostasis, QT prolongation • Benzodiazepines should only be reserved for treatment of alcohol or benzodiazepine withdrawal; adverse effects include sedation, respiratory depression, worsening delirium and cognition, ataxia, amnesia, disinhibition, and incoordination

This project was funded under contract number 75Q80119C00004 from the Agency for Healthcare Research and Quality (AHRQ), U.S. Department of Health and Human Services. The authors are solely responsible for this report's contents, findings, and conclusions, which do not necessarily represent the views of AHRQ. Readers should not interpret any statement in this report as an official position of AHRQ or of the U.S. Department of Health and Human Services. None of the authors has any affiliation or financial involvement that conflicts with the material presented in this report. *View AHRQ Disclaimers*