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Pain Assessment in Hospitalized Older Adults With Dementia and Delirium

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Abstract

Pain can have negative effects leading to prolonged hospital stays. Determining the presence of uncontrolled and untreated pain in patients with cognitive impairments such as delirium, dementia, and delirium superimposed on dementia (DSD) is challenging. One tool commonly suggested for use in assessment of pain in older adults with cognitive impairment is the Pain Assessment In Advanced Dementia (PAINAD) scale. Proper use of the PAINAD scale as part of a comprehensive pain management plan can help reduce the likelihood of a patient experiencing unrecognized and untreated pain. Using an individual example, this article illustrates best practices in pain assessment and management for a woman experiencing DSD during an acute hospitalization.

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Mrs. V. is a 94-year-old woman who sustained a fall with a right hip fracture at home. Her medical history includes hypertension, left knee arthroplasty, arthritis, osteoporosis, and tonsillectomy. Her family has stated that lately she has been forgetting things, such as birthday cards, the mail, eating meals, and various other activities that are part of her normal routine. They mentioned that the possibility of dementia was discussed during a previous hospitalization.

Upon admission to the hospital, Mrs. V. verbally rates her pain a 10 of 10, and she is moaning and yelling out. She is given 4 mg of morphine intravenously in the emergency department and is prepared for surgery that morning. Following surgery with general anesthesia, she is admitted to an acute care of the elderly (ACE) unit. Upon awakening from surgery, she states her pain is 8 of 10 on a 0 to 10 verbal pain intensity scale. Mrs. V. is started on a regimen of alternating as-needed oral and intravenous pain medications.

As the night progresses, Mrs. V. becomes very agitated. Mrs. V.'s daughter states, "This is not my mother; she never acts like this." Upon hearing this information, the nurses on the ACE unit assess Mrs. V. and become concerned about the possibility of delirium superimposed on dementia (DSD). Notably, several factors could be contributing to signs of delirium including general anesthesia, postoperative pain, pain medications, altered serum laboratory values, and environmental changes. By now, Mrs. V.'s pain has not been addressed for 6 hours. When asked about her pain, Mrs. V. says, "Get away from me; it is none of your business." The nurses observe that Mrs. V. is grimacing with movement, striking out, and her emotional state fluctuates by the minute. However, the nurses are able to console her for several minutes at a time. Her vital signs reveal tachycardia, hypertension, and tachypnea. Mrs. V. is started on a pain regimen of scheduled hydrocodone (Vicodin[®]) 5 mg every 8 hours. Mrs. V. became oriented, cooperative, and attentive by morning.

BACKGROUND

Chronic pain affects more than 30% of older adults living in the community (Reyes-Gibby, Aday, & Cleeland, 2002), and among approximately 50% of adults who are admitted to the hospital in pain, 19% report that pain is moderate or extremely severe (Desbiens et al., 1996). Two biological changes associated with aging may play a role in the undertreatment and underreporting of pain in older adults. First, as people age, pathophysiological changes occur in the pain fiber systems. Age-associated decreases in pain fibers may lead to elevated sensory thresholds and decreased affective reports of pain (Gøransson, Mellgren, Lindal, & Omdal, 2004). Second, as people age, the prevalence of cognitive impairment increases. Among older adults who are 65 and older, approximately 11% have Alzheimer's disease (AD) and among those ages 85 and older, 32% have AD (Alzheimer's Association, 2013).

A frequent form of cognitive impairment among hospitalized older adults is delirium. The prevalence of delirium is 50% in the general hospital setting (Inouye et al., 1999) and may increase to 80% in critical care (Inouye, 2006). Determining the presence of delirium can be difficult because delirium can present in several ways such as hyperactive, hypoactive, or mixed. Patients typically display inattention, exhibit disorganized thinking, or experience disturbance in the sleep-wake cycle (Burns, Gallagher, & Byrne, 2004). Unfortunately, cognitive syndromes such as delirium or dementia generally do not develop singularly. Delirium affects approximately 50% of hospitalized patients with dementia (Fick, Kolanowski, Waller, & Inouye, 2005) and leads to a condition termed *delirium superimposed on dementia* (DSD). Adverse events are associated with DSD, including accelerated decline in cognitive functional abilities, greater need for institutionalization, rehospitalization, and increased mortality (Fick, Agostini, & Inouye, 2002). Determining baseline cognitive status in someone with possible DSD is critical in establishing a formal diagnosis (Fick, Steis, Mion, & Walls, 2011) (Table 1).

PAIN AND COGNITIVE IMPAIRMENT

Pain in older adults with dementia, delirium, or DSD can develop from various sources. Regardless of whether pain is acute or chronic, untreated pain can lead to negative outcomes, such as sleep disturbances, impaired ambulation, depression, refusal of care, worsening cognitive impairment, and agitation (American Geriatrics Society Panel on the Pharmacological Management of Persistent Pain in Older Persons, 2009). Overall, untreated pain leads to increased suffering and a diminished quality of life (Husebo et al., 2008). When compared to people without a dementia diagnosis, and despite evidence that older adults with mild and moderate dementia can reliably report severe pain, individuals with dementia receive fewer orders for opioid pain medications (Monroe, Carter, Feldt, Dietric, & Cowan, 2013). Additionally, individuals with worsening cognitive impairment consistently receive less pain medication in the presence of conditions known to be painful in people who are cognitively intact (Monroe & Carter, 2010; Monroe et al., 2013; Morrison et al., 2003).

Untreated pain can be a risk factor for developing delirium, and the ability to remain attentive can diminish as pain level increases (Crombez, Eccleston, Baeyens, & Eelen, 1998;

Eccleston & Crombez, 1999). For example, suboptimal postoperative pain management has been associated with increased risk for developing delirium and prolonged hospital stays (Schreier, 2010; Vaurio, Sands, Wang, Mullen, & Leung, 2006). Conversely, appropriately treated pain is associated with a decreased risk for or delayed development of delirium. When compared to hospitalized older adults who received little or no opioid medication and developed moderate to severe delirium, those who received opioid pain treatment developed only mild delirium (Robinson, Rich, Weitzel, Vollmer, & Eden, 2008), demonstrating that appropriately used opioid or non-narcotic medications may reduce, diminish, or resolve delirium.

PAIN ASSESSMENT IN ADULTS WITH LIMITED ABILITY TO COMMUNICATE

Regardless of cognitive status, it is important to provide a systematic, consistent method when assessing pain to ensure adequate pain management. A Hierarchy of Pain Assessment Techniques has been recommended to provide a structure in assessing and treating pain (Elliott & Horgas, 2009; Mentis, Teer, & Cadogan, 2004; Pasero & McCaffery, 2000). The Hierarchy of Pain Assessment Techniques includes:

- First, attempt to promote a self-report of pain from the patient.
- Identify any conditions or procedures that may cause pain.
- Use a behavioral assessment scale. Use the same scale consistently on the patient throughout admission.
- Discuss with family members changes in the patient's behavior that may indicate pain.
- Attempt a trial of an analgesic medication.

By attempting to obtain a self-report, searching for potential causes of pain, looking for behavioral cues, and encouraging family member involvement, a comprehensive approach to assessing pain can be used in patients with cognitive impairment.

To help identify pain in adults with limited ability to communicate, nurses need tools that are reliable, valid, and easy to use. The Pain Assessment In Advanced Dementia (PAINAD) scale has been recommended for use in nursing homes and has also been suggested for use in hospitalized adults (Monroe & Mion, 2012), including individuals with DSD (Warden, Hurley, & Volicer, 2003). The PAINAD scale demonstrates adequate psychometric properties and provides a clinically relevant and easy-to-use pain assessment tool for individuals with advanced dementia (Warden et al., 2003). The PAINAD scale may be useful in assessing behaviors associated with pain in patients with cognitive impairments ranging from mild to severe, especially when the ability to communicate has been lost.

The PAINAD scale assesses five behaviors: breathing, negative vocalization, facial expression, body language, and the ability to be consoled (Figure and Table 2). Each of the five indicators is scored on a range from 0 (*not present*) to 2 (*completely present*) based on direct observation for a total score that ranges from 0 to 10 (Warden et al., 2003). Nurses

should be careful not to compare the 0 to 10 score on the PAINAD scale with a 0 to 10 score on a verbal pain intensity scale. Pain experts have posited that without self-report, pain intensity is not possible (Pasero & McCaffery, 2005). For example, because of some pathological disorders (e.g., AD, myasthenia gravis, amyotrophic lateral sclerosis), some patients may not possess the ability to behaviorally respond to pain. Furthermore, some medications such as statins, antiarrhythmic agents, corticosteroid agents, colchicine, chloroquine agents, immunomodulator agents, antiviral agents, antifungal/antibacterial agents, oncology drugs, gastrointestinal drugs, or neurological/psychiatric drugs may cause muscle weakness (reviewed in Mor, Wortmann, Mitnick, & Pillinger, 2011).

Thus, it is plausible that many comorbidities and/or medications can alter one's ability to behaviorally respond to pain. Guidelines for scoring the PAINAD scale indicate a score of 2 as a proxy for "likely pain" that requires an intervention such as the administration of a mild opioid agent (Zwakhalen, van der Steen, & Najim, 2011). In contrast, a numeric (verbal) rating scale score of 2 of 10 would likely indicate using a nonpharmacological technique such as repositioning or administration of a nonnarcotic analgesic agent (e.g., acetaminophen [Tylenol®]). Nevertheless, Mosele et al. (2012) assert that the PAINAD scale can be used as a valid proxy for pain intensity.

In Mrs. V.'s case, she is a patient diagnosed with a right hip fracture following a fall at home. She has a long documented history of arthritic pain in both knees. Her fluctuating cognitive impairment plays a critical role in her inability to consistently verbally rate her pain on the numeric scale. During hospitalization, she became more agitated and showed signs of pain. She was unable to verbally rate pain and her PAINAD score was 8:

- Occasional labored breathing (breathing independent of vocalization) = 1
- Repeated troubled calling out, moaning (negative vocalization) = 2
- Facial grimacing (facial expression) = 2
- Pulling or pushing away, striking out (body language) = 2
- Distraction (consolability) = 1
- Total score = 8

Mrs. V. was treated by scheduling her pain medication, which is recommended for postsurgical older adults (Asher, 2004). One study found that older patients who used oral opioid analgesic agents on a scheduled basis were at decreased risk of developing delirium compared with those who used intravenous patient-controlled analgesia management of pain (Vaurio et al., 2006). By morning, Mrs. V. was alert and oriented, and her pain was reduced.

INDIVIDUAL EXAMPLE DISCUSSION

During Mrs. V.'s admission, she was diagnosed with a hip fracture secondary to a fall at home, dementia, and noted chronic pain related to arthritis. Opioid agents were given to her in the emergency department to assist with immediate pain control prior to surgery. Mrs. V. was admitted to the ACE unit sedated from the anesthesia and pain medication with a Richmond Agitation-Sedation Scale (RASS) score of 2, indicating she can be briefly

aroused, maintaining eye contact for less than 2 seconds (Sessler et al., 2002). Overnight, Mrs. V. was restless and her mental state began to fluctuate—she was delirious based on her fluctuating mental status, disorganized thinking, and inattention. Mrs. V. has DSD. Pain was addressed once the PAINAD scale was completed, on which Mrs. V. scored an 8. She was given hydrocodone/acetaminophen 5/500 mg and monitored through behavioral observations, vital signs, and continued use of the PAINAD scale. By consistently using the PAINAD scale, Mrs. V.'s pain was reduced.

NURSING IMPLICATIONS

When possible, clinicians should use a combination of subjective and objective reports to help identify pain in patients with dementia, delirium, or DSD. Using a consistent nonverbal pain assessment tool, such as the PAINAD scale, is important and allows clinicians to more accurately manage pain throughout the continuum of care. The recommended frequency of use of the PAINAD scale for patients who have acute pain, in addition to those who have chronic pain, is at least every 4 hours (Horgas & Miller, 2008). A notable limitation of behavioral tools is that they lack a verbal report of pain, and some have suggested that without a verbal report, pain intensity cannot be determined (Pasero & McCaffery, 2005). Clinicians should use discretion when assigning an intensity score to a behavioral score—the 0 to 10 score of the PAINAD scale is not the same as the 0 to 10 verbal descriptive pain intensity scale. However, when used as one part of a comprehensive approach to pain management in older adults with dementia, the PAINAD scale can help reduce the likelihood of experiencing unrecognized and untreated pain. Nurses are the key health care providers often responsible for assessing pain, and their critical thinking skills are essential in using the PAINAD scale as one component of a comprehensive pain management plan in patients with delirium, dementia, or DSD.

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- Ask the older adult with dementia about his/her pain. Even older adults with mild to moderate dementia care respond to simple questions about their pain (AGS Panel, 2009).
- Use the tool if you suspect pain before and after administering pain medication.
- Assess patient during periods of activity, such as turning, ambulating, and transferring.
- Assess patients for each of the five behaviors.
- Assign a numerical point value based on each of the five behaviors observed.
- Obtain a total score by adding scores from the five behaviors. Total score can range from 0 to 10.

Figure.

How to use the Pain Assessment in Advanced Dementia (PAINAD) scale. Adapted from Warden, V., Hurley, A.C., & Volicer, L. (2003). Development and psychometric evaluation of the Pain Assessment in Advanced Dementia (PAINAD) scale. *Journal of the American Medical Directors Association*, 4, 9-15.

TABLE 1
DELIRIUM ASSESSMENT IN THE PRESENCE OF DEMENTIA

Delirium Indicators^a	Description of Delirium Indicator	Method of Assessment for Delirium Indicator	Notes Regarding Dementia Versus Delirium
Acute onset	Delirium symptoms develop in hours or days	Ask caregiver: Before this event/illness, what was the patient's behavior usually like? Focus on the individual's ability to perform activities of daily living (ADLs) and instrumental ADLs (e.g., using the telephone, managing bank account).	Changes in dementia are slow, occurring over months to years.
Fluctuating course	Symptoms wax/wane over 24-hour period	Assess: Does lethargy/restlessness alternate over several hours? Are there periods of lucidity with confusion?	In dementia, some behaviors may fluctuate, but thinking and memory change slowly over time.
Inattention	Difficulty focusing	Assess: Does the patient focus attention on you when you are speaking? Is there eye contact? Do you need to repeat your question/directions? Ask the patient to state the days of the week backward.	In dementia, individuals are able to focus on speaker until advanced stages.
Disorganized thinking	Rambling, nonsense speech	Assess: Does the patient make sense when responding to you? Ask patient: "What would you do if you found a stamped envelope on the sidewalk?" "What would you do if your home was on fire?"	In early stages of dementia, individuals are able to make sense when responding.
Altered level of alertness	Can be hypo- or hyper-alert	Assess: Is lethargy or somnolence (hypo-alert) or restless, agitated (hyper-alert) behavior different from baseline?	Level of alertness is not altered in dementia.

^aDelirium is marked by acute onset, fluctuating course, inattention, and either (a) disorganized thinking or (b) altered level of alertness. Visual and/or auditory hallucinations may be present. Baseline should be established by the primary caregiver.

TABLE 2
PAIN ASSESSMENT IN ADVANCED DEMENTIA (PAINAD) SCALE

Items	Score = 0	Score = 1	Score = 2	Score
Breathing (independent of vocalization)	Normal	<ul style="list-style-type: none"> • Occasional labored breathing • Short period of hyperventilation 	<ul style="list-style-type: none"> • Noisy labored breathing • Long period of hyperventilation • Cheyne-Stokes respirations 	
Negative vocalization	None	<ul style="list-style-type: none"> • Occasional moan or groan • Low level of speech with a negative or disapproving quality 	<ul style="list-style-type: none"> • Repeated troubled calling out • Loud moaning or groaning • Crying 	
Facial expression	Smiling or inexpressive	<ul style="list-style-type: none"> • Sad • Frightened • Frown 	<ul style="list-style-type: none"> • Facial grimacing 	
Body language	Relaxed	<ul style="list-style-type: none"> • Tense • Distressed pacing • Fidgeting 	<ul style="list-style-type: none"> • Rigid • Fists clenched • Knees pulled up • Pulling or pushing away • Striking out 	
Consolability	No need to console	<ul style="list-style-type: none"> • Distracted or reassured by voice or touch 	<ul style="list-style-type: none"> • Unable to console, distract, or reassure 	
Total				

Note. Total scores range from 0 to 10 (based on a scale of 0 to 2 for each of five items), with a higher score indicating more behaviors indicating pain (0 = no observable pain to 10 = highest observable pain).

Adapted from Warden, V., Hurley, A.C., & Volicer, L. (2003). Development and psychometric evaluation of the Pain Assessment in Advanced Dementia (PAINAD) scale. Journal of the American Medical Directors Association, 4, 9-15.