



Assessing and Managing Pain, Agitation, and Delirium in Hospitalized Older Adults

While common in the acute care setting, this syndrome may be difficult to recognize and treat.

ABSTRACT: In the acute care setting, pain, agitation, and delirium (PAD) often occur as interrelated parts of a syndrome rather than as separate entities. Because the three facets of PAD may be similar in presentation, it is often difficult for clinicians to recognize the syndrome and to assess and treat it. The challenge is particularly great in older patients, who are more likely than their younger counterparts to have such comorbid conditions as dementia, which may impair the ability to report pain, or age-related physiologic changes that may affect the metabolism and clearance of certain medications. This article provides an overview of each aspect of PAD, discusses clinical considerations related to the assessment and treatment of the syndrome in older adults receiving acute care, and illustrates the application of published PAD guidelines through the use of a hypothetical patient scenario.

Keywords: acute care, agitation, delirium, older adults, pain

Rose Wilson was admitted through the ED after falling at home. (This case is a composite based on our experience.) Ms. Wilson was 75 years of age and lived alone. A neighbor, concerned that he had not seen her walking her dog, investigated, found her injured and lying on the floor of her home, and called an ambulance. When evaluated in the ED, she was found to be dehydrated, with a fractured left hip and a urinary tract infection. Her medical record indicated that she had comorbid diagnoses of osteoarthritis, diabetes, and hypertension.

After undergoing surgical repair of her hip, Ms. Wilson was transferred to a postoperative step-down unit. In the 24 hours following surgery, she

received two 2-mg doses of iv morphine and one 5-mg dose of oral oxycodone, which was administered four hours ago. She is confused, agitated, and unable to report her pain status. She refuses to speak to or cooperate with the staff, often tries to get out of bed by herself, and repeatedly calls for her son, insisting that he take her home.

This scenario is all too common in the acute care setting. Pain, agitation, and delirium often occur in tandem and can be understood as aspects of a syndrome called PAD. This syndrome can be difficult to assess and treat in older adults, who may have age-related physiologic changes that affect medication metabolism and clearance or such conditions as dementia, which may impair their ability to report pain.



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More than one-third of the patients admitted to hospitals in the United States are ages 65 or older,¹ and up to 80% of older adults have at least one chronic medical condition,² which may put them at increased risk for developing PAD when hospitalized. In this article, we will describe the three facets of the PAD syndrome; discuss clinical considerations and best practices related to assessing and managing the condition in older, hospitalized adults; and explain how current guidelines and recommendations can be incorporated in the management of PAD as the syndrome presented in Ms. Wilson.

THE THREE ASPECTS OF PAD

Pain is defined by the International Association for the Study of Pain (IASP) as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.”³ Signs and symptoms of pain may be influenced by the patient’s affective and cognitive abilities, past experiences with pain, injury type and location, and sociocultural factors. It’s often difficult for health care providers to detect and adequately manage pain in older patients, because such patients may⁴⁻⁶

- mistakenly accept potentially treatable pain as a normal part of aging.
- fear being perceived as a “complainer.”

- believe that pain is less important to health care providers than other aspects of health.
- have an impaired ability to report pain because of dementia or delirium.

Up to 60% of hospitalized patients receive inadequate analgesia during the postsurgical period.⁷ Even when health care providers recognize pain, they often underprescribe analgesics out of concerns related to oversedation, polypharmacy, cardiopulmonary instability, decreased end-organ perfusion, or physical dependence.^{7,8}

Pain is well known to affect health, functioning, and quality of life. Pain may also impede important postoperative rehabilitation activities such as coughing and deep breathing, gait training, and eating, placing postsurgical patients at risk for pneumonia, deep vein thrombosis, ileus, and an increased hospital length of stay.

Agitation is an unpleasant state of arousal, characterized by excessive, usually nonpurposeful motor activity.^{9,10} Since agitation is often a component of delirium, it can be difficult to differentiate the two states. In one retrospective study involving 792 patients, the incidence of agitation following surgery, known as “emergence agitation,” was 22.2%.¹¹ Emergence agitation may be caused by pain, anxiety, disorientation, or drug administration. Other potential risk factors

include the presence of endotracheal tubes or urinary catheters.^{11,12} When patients experience agitation during hospitalization, it can lead to self-harm and other adverse sequelae.

Delirium is an altered mental state characterized by acute onset and fluctuating symptoms, including inattention, poor cognition, and psychomotor disturbances (see *Symptoms Associated with Delirium*).^{13,14} There are three delirium subtypes: hypoactive, which may manifest as withdrawal or reduced activity; hyperactive, which may manifest as agitation, arousal, or aggression; and mixed, which may present with both hypoactive and hyperactive symptoms.¹³ Hypoactive delirium is often missed or wrongly attributed to dementia.

Studies have found that delirium affects 29% to 49% of patients in general medical units, 45% to 54% of patients in geriatric units, and 26% to 82% of patients in intensive care.¹⁴ Delirium can have a significant negative impact on both short- and long-term recovery in acute care patients. In the short term, delirium delays mobility and prolongs hospitalization.¹⁵ In the long term, delirium has been associated with an increased risk of cognitive and functional decline,

institutionalization, and death.^{16,17} In a study involving 821 medical–surgical ICU patients, 606 (74%) of whom developed delirium during their hospital stay, three-month follow-up with 448 of the patients revealed that 40% had global cognition scores at levels associated with moderate traumatic brain injury, and 26% had scores on par with patients who had mild Alzheimer’s disease.¹⁸ Deficits persisted at 12-month follow-up in 382 of the patients, with 34% and 24% continuing to display cognitive impairment similar to that seen in moderate traumatic brain injury or mild Alzheimer’s disease, respectively. A longer duration of delirium was an independent risk factor for both lower global cognition scores and poorer executive function at both three- and 12-month follow-up. Another study found that underlying cognitive impairment was predictive of postoperative delirium and that risk of postoperative delirium rose with the severity of cognitive impairment. Furthermore, cognitively impaired patients who developed postoperative delirium were significantly more likely to experience subsequent functional decline.¹⁹

FIRST PRIORITY: PAIN MANAGEMENT

When pain is prevented or immediately treated, agitation and delirium can often be avoided. However, despite the widespread availability of pain management guidelines, clinicians often feel that they have inadequate training or expertise in treating pain and lack confidence in their ability to manage pain. Well-established and widely practiced interventions include

- frequent assessment—throughout every shift and after pain management interventions, especially as the patient transitions from the hospital to home.
- use of multimodal interventions.
- use of preprocedural analgesia.
- treating pain before considering sedation.

Pain assessment of an older adult often involves the patient’s partner, spouse, or family members, especially if the patient has dementia, is particularly frail, or lives with family caregivers. While balancing the risks and benefits of treatment, all parties can help establish measurable goals of care, which should include pain control, quality of life concerns, and desired functional status. Clinicians should use pain assessment scales appropriate to the patient’s cognitive and verbal abilities.

In patients who can self-report pain, the visual analog scale (VAS), numeric rating scale (NRS), verbal rating scale (VRS), and the Faces Pain Scale–Revised (FPS-R) are commonly used. The pain scale used is often determined by facility preference. Of these scales, the NRS has been found to be most responsive (meaning it can most accurately detect changes in pain intensity), followed by the VAS, VRS, and FPS-R.²⁰ The sex of the patient has a significant effect on pain perception in all the scales (with the exception of the VAS), with women reporting higher pain intensity.

Symptoms Associated with Delirium

1. Change in level of arousal: drowsiness or decreased arousal* or increased arousal with hypervigilance
2. Delayed awakening from anesthesia*
3. Abrupt change in cognitive function (worsening confusion over hours or days), including problems with attention, difficulty concentrating, new memory problems, new disorientation
4. Difficulty tracking conversations and following instructions
5. Thinking and speech that is more disorganized, difficult to follow, slow,* or rapid
6. Quick-changing emotions, easy irritability, tearfulness, uncharacteristic refusals to engage with postoperative care
7. Expression of new paranoid thoughts or delusions (ie, fixed false beliefs)
8. New perceptual disturbances (eg, illusions, hallucinations)
9. Motor changes such as slowed or decreased movements,* purposeless fidgeting or restlessness, new difficulties in maintaining posture such as sitting or standing*
10. Sleep/wake cycle changes such as sleeping during the day* and/or awake and active at night
11. Decreased appetite*
12. New incontinence of urine or stool*
13. Fluctuating symptoms and/or level of arousal over the course of minutes to hours

*Hypoactive symptoms.

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Clinicians should perform a comprehensive initial assessment and consistently document pain ratings and the patient's acceptable level of pain intensity in the medical record. The comprehensive initial assessment should include the following factors⁶:

- primary location of the pain
- quality, character, onset, and duration of the pain
- alleviating or aggravating factors associated with the pain
- effectiveness of the current pain management regimen
- history of pain management
- effects of the pain
- patient's goal for pain and acceptable or tolerable level of pain

Since it is often impossible to eliminate pain entirely, it is important to consider patients' goals for comfort and function—that is, the level of pain patients consider tolerable and the degree of pain relief they consider essential in order to function meaningfully (to hold an object, walk, feed themselves, climb stairs, or interact with others, for example). Generally, a pain rating of 4 or higher on a 0 to 10 numeric rating scale represents a moderate level of pain that significantly interferes with function.⁶ A score as low as 4 should thus trigger action to manage pain, particularly in hospitalized patients in whom resumption of function is critical to healing and discharge.

When a patient is unable to self-report pain, closely observe the patient for the following behavioral indicators of pain:

- facial grimacing
- moaning or groaning
- agitation
- irritability
- confusion
- combativeness

In the absence of a patient's self-report of pain, behavioral observation is recommended. Several leading professional organizations, including the IASP and the American Society for Pain Management Nursing, have developed clinical guidelines that address the use of behavioral measures to assess pain.^{21,22} City of Hope, a cancer treatment and research center in Southern California, provides a comprehensive review of tools used to assess pain in nonverbal older adults on its Web site (see <http://prc.coh.org/PAIN-NOA.htm>). It is recommended that clinicians choose a reliable and valid behavioral assessment tool and use it consistently to assess pain in older adults.

In postoperative patients, appropriate pain assessment and management may support rehabilitation while minimizing the risk of falls during hospitalization and after discharge. A cross-sectional analysis of the 2011 National Health and Aging Trends Study that included 7,601 participants, representative of 35.3 million Medicare beneficiaries, found that recurrent falls (two or more over the previous year) were

more than twice as prevalent among participants who reported bothersome pain (19.5%) than among those who did not (7.4%).²³

Managing pain in older adults can be challenging because of the following health risks that must be considered when caring for them:

- sensitivity to such medications as benzodiazepines and opioids
- potential interactions of multiple medications
- physiologic changes, such as reduced muscle mass, increased fat distribution, and declining renal function, which may alter the metabolism and clearance of certain drugs

For example, loss of muscle and increased overall body fat may increase the distribution of such lipophilic drugs as anesthetics, thus prolonging their duration of action, while declining renal function may delay the clearance of certain drugs. Moreover, the effects of prescribed medications on older adults are difficult to predict, given that premarketing trials frequently exclude older participants. The effects of opioid medications can be particularly difficult to predict.

Intraoperative considerations. Effective postoperative pain management begins before surgery. When developing a plan of care, it is important to consider all pain management options. For a patient who will require hip surgery, as Ms. Wilson did in our opening scenario, clinicians should consider using intraoperative neuraxial blockade and nonpharmacologic interventions as well as nonopioid, adjuvant, or opioid (oral and iv) medications, depending on the patient's level of pain. Before surgery, clinicians may use regional anesthesia (spinal, epidural, or nerve blocks, or sheaths) to reduce postoperative pain. Clinicians may also use a combination of regional and general anesthesia to increase postoperative pain control, mobility, and gastrointestinal function and reduce the risk of postoperative confusion and delirium. A retrospective study of 18,158 patients who underwent surgery to repair a fractured hip found that the 5,254 (29%) patients who received regional anesthesia had a significantly lower rate of pulmonary complications than the 12,904 (71%) who received general anesthesia.²⁴ Logistic regression analysis, controlling for sex, age, fracture location, and various comorbid conditions, showed that regional anesthesia was associated with a significantly lower risk of inpatient mortality among patients with intertrochanteric fractures. Additionally, a systematic review of 28 studies of patients undergoing elective joint arthroplasty found that use of regional anesthesia, combined with multimodal techniques that minimized the need for postoperative opioids, reduced the risk of early postoperative cognitive dysfunction.²⁵

The World Health Organization (WHO) pain guidelines. In 1986, the WHO published guidelines for the treatment of cancer pain. Since that time, the guidelines have been widely used to treat pain of all types.

The guidelines established six primary principles of pain management²⁶:

- The dosing of pain medications should be determined on an individual basis.
- The oral route is preferred for medication delivery, unless the patient has intractable vomiting, because it places fewer restrictions on the patient than the parenteral route.
- Insomnia should be treated seriously, as it may exacerbate morbidity.
- Adverse effects should be monitored and treated systematically.
- Some patients require adjuvant medications, such as antidepressants, anxiolytics, anticonvulsants, neuroleptics, or corticosteroids.
- Patient progress should be closely monitored.

The WHO further stresses two key concepts in using analgesics to manage pain: “by the clock” and “by the ladder.”²⁶ In other words, pain medications should be delivered on a regular schedule, with the next dose given before the effects of the first wear off,

in order to minimize breakthrough pain and the need for IV medications. Pain medications should also be delivered in the following step-by-step manner (the “ladder”)²⁶:

- **Step 1 (for mild to moderate pain).** Administer a nonopioid analgesic, and if pain persists or increases, proceed to step 2.
- **Step 2 (for moderate pain).** Administer a weak opioid plus a nonopioid, and if pain persists or increases, proceed to step 3.
- **Step 3 (for moderate to severe pain).** Administer a strong opioid plus a nonopioid.

For a list of medications commonly used to treat acute pain, see Table 1.²⁷ Adjuvant medications may be used at any of the three steps (see Table 2).²⁶ The WHO is expected to release new guidelines with a revised pain ladder in 2016 or 2017.

Nonpharmacologic interventions, such as physical or psychological interventions or complementary modalities, can usually be used at all levels of pain intensity (see Table 3).

Table 1. Medications Commonly Used to Treat Acute Pain^a

Medication	Nursing Considerations
<p>Nonopioids</p> <ul style="list-style-type: none"> • ibuprofen (Advil and others) • aspirin (Bayer and others) • naproxen (Naprosyn and others) • acetaminophen (Tylenol and others) 	<ul style="list-style-type: none"> • Monitor patients taking ibuprofen or naproxen for gastrointestinal bleeding. • Acetaminophen is contained in numerous prescription and over-the-counter products. Monitor medications closely to ensure that patients’ total daily dose of acetaminophen does not exceed 4,000 mg.
<p>Combination opioids^b</p> <ul style="list-style-type: none"> • hydrocodone–acetaminophen (Norco, Vicodin) • oxycodone–acetaminophen (Percocet and others) • oxycodone–aspirin (Percodan, Endodan) • codeine–acetaminophen (Tylenol with Codeine No. 3 and No. 4) 	<ul style="list-style-type: none"> • Monitor patients for adverse effects associated with opioids (see below). • Monitor combination medications containing acetaminophen closely to ensure that patients’ total daily dose of acetaminophen does not exceed 4,000 mg.
<p>Injectable opioids</p> <ul style="list-style-type: none"> • hydromorphone (Dilaudid) • morphine (Astramorph, Duramorph) • fentanyl (Sublimaze) 	<ul style="list-style-type: none"> • Monitor patients for the following adverse effects associated with opioids: <ul style="list-style-type: none"> o sedation o confusion (delirium) o respiratory depression o itching o nausea and vomiting o constipation o ileus o altered hemodynamic status

^aFor a list of potentially inappropriate medications for use in older adults, consult the American Geriatrics Society’s 2015 updated Beers criteria.²⁷

^bBrand names can include different dose combinations.

Table 2. Adjuvant Medications Commonly Used in the Treatment of Acute Pain

Medication	Nursing Considerations
<p>Antidepressants</p> <ul style="list-style-type: none"> • Tricyclic: amitriptyline, desipramine (Norpramin), nortriptyline (Pamelor) • SNRIs: duloxetine (Cymbalta), milnacipran (Savella) • SSRIs: fluoxetine (Prozac, Sarafem), paroxetine (Paxil and others), sertraline (Zoloft) • Aminoketone: bupropion (Wellbutrin and others) 	<ul style="list-style-type: none"> • Antidepressants are not first-line pain medications. They do not treat pain, but rather psychosocial components of pain such as anxiety, depression, and insomnia. • Doses of antidepressants are lower when the drugs are used for pain relief than for depression. They should be administered at night to promote sleep. • Tricyclic antidepressants may produce anticholinergic effects, including orthostatic hypotension, sedation, constipation, and delirium. • Patients receiving these agents are at risk for QT prolongation and should be monitored accordingly.
<p>α_2-adrenergic agonists</p> <ul style="list-style-type: none"> • clonidine (Catapres, Duraclon) • tizanidine (Zanaflex) • dexmedetomidine (Precedex) 	<ul style="list-style-type: none"> • These agents are prescribed for neuropathic pain, chronic headache, and withdrawal symptoms. • Dexmedetomidine should be administered only in an ICU, as it may cause hypotension and bradycardia.
<p>Anticonvulsants</p> <ul style="list-style-type: none"> • gabapentin (Neurontin and others) • pregabalin (Lyrica) 	<ul style="list-style-type: none"> • Monitor patients taking anticonvulsants for sedation, mental clouding, dizziness, and gastrointestinal upset. • Use lower doses in patients with renal insufficiency.
<p>Muscle relaxants</p> <ul style="list-style-type: none"> • baclofen (Gablofen, Lioresal) 	<ul style="list-style-type: none"> • Muscle relaxants do not treat pain directly, but alleviate spasticity in a variety of neurologic conditions, thus reducing musculoskeletal pain. • These agents increase somnolence and sedation and carry a risk of dependence.
<p>Benzodiazepines</p> <ul style="list-style-type: none"> • clonazepam (Klonopin) • diazepam (Valium, Diastat) • lorazepam (Ativan) 	<ul style="list-style-type: none"> • Benzodiazepines relieve pain caused by muscle spasm. • They are associated with sedation, respiratory depression, and risk of dependence.
<p>Glucocorticoids</p> <ul style="list-style-type: none"> • dexamethasone • prednisone (Rayos) • cortisone 	<ul style="list-style-type: none"> • Glucocorticoids may be used to reduce swelling and inflammation, alleviate nausea, improve mood, and stimulate appetite. • To reduce associated gastrointestinal upset, consider concurrent treatment with a histamine₂-receptor antagonist or a proton pump inhibitor.
<p>Cannabinoids</p> <ul style="list-style-type: none"> • Delta-9-tetrahydrocannabinol (THC) • cannabidiol • nabilone (Cesamet) 	<ul style="list-style-type: none"> • Cannabinoids are available for medical use in several states. They may increase somnolence.
<p>Topical agents</p> <ul style="list-style-type: none"> • lidocaine • local anesthetic creams • capsaicin patch or cream 	<ul style="list-style-type: none"> • Topical agents are associated with few adverse effects.
<p>Anesthetics</p> <ul style="list-style-type: none"> • ketamine (Ketalar) 	<ul style="list-style-type: none"> • Ketamine is used in pain crisis and typically administered only in an ICU. • Adverse effects include emergence reactions and hallucinations.

SNRI = serotonin norepinephrine reuptake inhibitor; SSRI = selective serotonin reuptake inhibitor.

PREDICTING, ASSESSING, AND MANAGING AGITATION AND DELIRIUM

Opinions regarding the optimal treatment for agitation have shifted considerably in recent years, moving increasingly in support of analgosedation, in which pain and discomfort are managed before sedative therapy is introduced.²⁸ Benzodiazepines are not a preferred first-line treatment for agitation because of their deliriogenic potential.⁸ Clinicians are now encouraged to limit sedation and to manage agitated behavior by identifying and treating its causes. However, the causes of agitation may be difficult to identify in older adults, and because agitation is similar to delirium, clinicians require targeted education on delirium to accomplish this goal.¹³

Significant predictors of delirium include^{8, 13, 29-31}:

- advanced age
- cognitive impairment, dementia
- hypertension
- alcoholism
- severe illness or comorbidity
- coma
- benzodiazepine use
- low body mass index
- low albumin levels
- polypharmacy
- dehydration
- hip fracture or hip fracture surgery
- infection
- preoperative pain and inadequately controlled pain
- fecal impaction

Prevention is paramount when caring for hospitalized patients at risk for delirium. The following nonpharmacologic preventive strategies can be quite effective and should be used throughout the period

Table 3. Nonpharmacologic Interventions in the Treatment of Acute Pain

Physical interventions: <ul style="list-style-type: none"> • heat pads • cold packs • massage • exercise • transcutaneous electrical nerve stimulation
Complementary approaches: <ul style="list-style-type: none"> • relaxation • imaging • distraction
Psychological interventions: <ul style="list-style-type: none"> • cognitive therapy • behavioral therapy • biofeedback • hypnosis

of hospitalization, regardless of whether patients display signs of agitation or delirium^{8, 13}:

- providing patients with their eyeglasses or hearing aids
- encouraging visitation of friends and family to promote reorientation
- supporting early mobility
- conferring with the prescriber to ensure that catheters and restraints are removed as soon as possible
- minimizing ambient noise
- promoting sleep by clustering care to allow for uninterrupted periods of rest and closing room doors
- encouraging nutritional and fluid consumption
- reviewing and managing medications (confering with the prescriber to ensure that medications with anticholinergic properties, corticosteroids, meperidine [Demerol], and sedative hypnotics are discontinued as soon as possible, and that medication regimens are streamlined as much as possible)

The American Geriatrics Society recommends screening patients for their risk of developing agitation and delirium.¹³ Several delirium assessment tools are reliable and valid (see “How To Try This Video: Delirium: The Under-Recognized Medical Emergency,” which can be found on *AJN*’s Web site at <http://bit.ly/29s3ibm>). For general delirium screening (non-ICU patients), tools include the short Confusion Assessment Method (short CAM), Delirium Symptom Interview, and Nursing Delirium Screening Scale. ICU screening tools include the CAM-ICU and Intensive Care Delirium Screening Checklist.

The CAM assessment evaluates the presence or absence of the following criteria³²:

- acute change and fluctuating symptoms
- inattention
- disorganized thinking
- altered level of consciousness

The patient is identified as having delirium if the first two criteria are present in conjunction with either the third or fourth. For patients who screen positive for delirium, nonpharmacologic preventive strategies should be continued and the following pharmacologic interventions considered:

- reducing the dose and duration of any antipsychotic medication and targeting sedation to patients who are at risk for significant harm to themselves or others
- avoiding benzodiazepines unless ethanol withdrawal is suspected

Additional interventions, such as pain treatment, patient reorientation, and activity and sleep promotion, are recommended for ICU patients who screen positive for delirium.^{8, 13}

PUTTING IT ALL INTO PRACTICE: CARING FOR MS. WILSON

If you are treating Rose Wilson, the patient who experienced postoperative PAD in the opening scenario,

how would you best manage her symptoms? First and foremost, you would need to treat her pain. If you determined that Ms. Wilson was unable to adequately self-report her pain, you would use a behavioral scale to determine its severity. Let's imagine that your review of the medication administrative record from previous shifts finds that she has received a varied pain regimen, but with little pain relief.

Since Ms. Wilson's pain is still not well controlled, you would assess her for other factors that could be causing her behavior and pain severity, such as infection, hypoglycemia or hyperglycemia, and drug withdrawal. You comprehensively assess potential precipitating factors as you conduct a complete physical examination and pain assessment. You determine Ms. Wilson's incision is healing well, her blood glucose levels are normal, and her pain is related to her incision. She was admitted with a urinary tract infection and is currently receiving appropriate antibiotic treatment. She has no other predisposing condition. After reconciling her medications and reviewing both her home and hospital medications, you determine that all have been administered, she is not at risk for medication withdrawal, and she is opioid naïve.

decide to administer oxycodone 5 mg by mouth—now, and again in four hours—to give Ms. Wilson longer-lasting control of her pain. Knowledge of the various medications Ms. Wilson is taking, their doses, mechanisms of action, and interactions, allows you to “overlap” the medications to help her obtain maximum benefit with the fewest adverse effects. You reassess Ms. Wilson's pain in 30 to 60 minutes and treat her in accordance with WHO guidelines, based on her pain score.

Once her pain is assessed as mild, you can go back to step 1. You can consider providing nonpharmacologic interventions, such as ice and repositioning, administer hydrocodone 5 mg–acetaminophen 325 mg, one tablet by mouth every six hours as needed for pain, or acetaminophen 325 mg, two tablets by mouth as needed for pain or fever. Be careful, however, not to exceed the maximum daily dose of acetaminophen.

Let's now consider a potentially different scenario for Ms. Wilson. Imagine that you've learned that at home she takes oxycodone 5-mg tablets every four to six hours as needed for chronic low back pain. As before, per step 3, you would administer morphine 2 mg intravenously first, since she is in severe pain, and

If patients who already take opioids at home are experiencing acute pain while hospitalized, they usually require higher doses or more frequent administration of opioids to gain control.

Because Ms. Wilson is still experiencing severe pain, the WHO pain ladder indicates that treatment should begin with step 3, a strong IV opioid. Ms. Wilson's pain medication orders include:

- morphine 1 to 2 mg intravenously every four to six hours as needed for severe pain
- oxycodone 5 to 10 mg by mouth every four to six hours as needed for moderate to severe pain
- hydrocodone 5 mg–acetaminophen 325 mg, one tablet by mouth every six hours as needed for minor pain
- acetaminophen 325 mg, two tablets by mouth every four to six hours as needed for pain or fever

The medication administration record shows that Ms. Wilson received morphine 2 mg intravenously during the last shift without adverse effects. You administer morphine 2 mg intravenously first and reassess her pain in 15 to 30 minutes. In 15 minutes her behavior is improved and pain is now moderate.

Remembering that according to the WHO guidelines the oral route is preferable (when accessible) and that medications should be delivered on a schedule to prevent adverse effects and breakthrough pain, you

reassess her in 15 to 30 minutes. In this new scenario, however, after 15 minutes her pain is unrelieved and still severe. What's the next step?

For severe pain at this point you would need to call the provider for a different pain management plan. New orders would typically include a higher dose of IV morphine; or more frequent administration of IV morphine at the same 2 mg dose; or a stronger opioid; or even patient-controlled analgesia, if appropriate for Ms. Wilson. Family and friends should be encouraged to visit to help the patient with reorientation.

If patients who already take opioids at home are experiencing acute pain while hospitalized, they usually require higher doses or more frequent administration of opioids to gain control. In this scenario with Ms. Wilson, other possibilities include ordering the daily oxycodone she normally takes at home and administering that in addition to the new medication she requires for her acute pain, or consulting the clinical pharmacist or acute pain team for help in calculating her daily opioid requirements based on her daily use at home, and then converting that to an IV or IV-plus-oral postsurgical regimen.

Depending on a patient's admission diagnosis or type of surgery, opioid medications may not be required. For patients whose surgeries are extensive or long in duration, iv opioid medications may be required initially. Once the patient is able to take medications by mouth, oral nonopioid or opioid medications should be used. When patients require iv opioids for several days, it's important to convert requirements to oral dosages as soon as possible. Providers should expect patients to have pain after surgery but that the pain gradually improves over days to weeks. When patients have life-limiting conditions, consult with palliative care for additional pain management options during hospitalization or transition to home. ▼

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Tonja M. Hartjes is an acute care NP and a clinical associate professor at the University of Florida College of Nursing, Gainesville, where Ann L. Horgas is an associate professor. Lauren Meece is a certified NP and left ventricular assist device coordinator at University Hospitals in Cleveland, OH. Contact author: Tonja M. Hartjes, tonjabartjes@gmail.com. The authors and planners have disclosed no potential conflicts of interest, financial or otherwise.

REFERENCES

- Weiss AJ, Elixhauser A. Overview of hospital stays in the United States, 2012: statistical brief #180. In: *Healthcare cost and utilization project (HCUP) statistical briefs*. Rockville, MD; 2014. <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb180-Hospitalizations-United-States-2012.pdf>.
- National Council on Aging. *Chronic disease management*. n.d. <https://www.ncoa.org/healthy-aging/chronic-disease>.
- International Association for the Study of Pain. *IASP taxonomy*. 2012. <http://www.iasp-pain.org/Taxonomy#Pain>.
- American Geriatrics Society Panel on Pharmacological Management of Persistent Pain in Older Persons. Pharmacological management of persistent pain in older persons. *J Am Geriatr Soc* 2009;57(8):1331-46.
- Horgas AL, et al. Pain assessment in persons with dementia: relationship between self-report and behavioral observation. *J Am Geriatr Soc* 2009;57(1):126-32.
- Pasero C, McCaffery M. *Pain assessment and pharmacological management*. St. Louis: Mosby/Elsevier; 2011.
- Adamson RT, et al. Clinical and economic implications of postsurgical use of opioid therapy. *Hosp Pharm* 2011; 46(6 Suppl 1):S4-S11.
- Barr J, et al. Clinical practice guidelines for the management of pain, agitation, and delirium in adult patients in the intensive care unit. *Crit Care Med* 2013;41(1):263-306.
- MedlinePlus. *Agitation*. National Library of Medicine. 2014. <https://www.nlm.nih.gov/medlineplus/ency/article/003212.htm>.
- Parrillo JE, Dellinger RP, editors. *Critical care medicine: principles of diagnosis and management in the adult*. 4th ed. Philadelphia: Elsevier Saunders; 2014.
- Kim HJ, et al. Risk factors of emergence agitation in adults undergoing general anesthesia for nasal surgery. *Clin Exp Otorhinolaryngol* 2015;8(1):46-51.
- Yu D, et al. Emergence agitation in adults: risk factors in 2,000 patients. *Can J Anaesth* 2010;57(9):843-8.
- American Geriatrics Society Expert Panel on Postoperative Delirium in Older Adults. American Geriatrics Society abstracted clinical practice guideline for postoperative delirium in older adults. *J Am Geriatr Soc* 2015;63(1):142-50.
- Inouye SK, et al. Delirium in elderly people. *Lancet* 2014; 383(9920):911-22.
- Klein Klouwenberg PM, et al. The attributable mortality of delirium in critically ill patients: prospective cohort study. *BMJ* 2014;349:g6652.
- Krogseth M, et al. Delirium is a risk factor for institutionalization and functional decline in older hip fracture patients. *J Psychosom Res* 2014;76(1):68-74.
- Witlox J, et al. Delirium in elderly patients and the risk of postdischarge mortality, institutionalization, and dementia: a meta-analysis. *JAMA* 2010;304(4):443-51.
- Pandharipande PP, et al. Long-term cognitive impairment after critical illness. *N Engl J Med* 2013;369(14):1306-16.
- Liang CK, et al. Interrelationship of postoperative delirium and cognitive impairment and their impact on the functional status in older patients undergoing orthopaedic surgery: a prospective cohort study. *PLoS One* 2014;9(11):e110339.
- Ferreira-Valente MA, et al. Validity of four pain intensity rating scales. *Pain* 2011;152(10):2399-404.
- Hadjistavropoulos T, et al. An interdisciplinary expert consensus statement on assessment of pain in older persons. *Clin J Pain* 2007;23(1 Suppl):S1-S43.
- Herr K, et al. Tools for assessment of pain in nonverbal older adults with dementia: a state-of-the-science review. *J Pain Symptom Manage* 2006;31(2):170-92.
- Patel KV, et al. High prevalence of falls, fear of falling, and impaired balance in older adults with pain in the United States: findings from the 2011 National Health and Aging Trends Study. *J Am Geriatr Soc* 2014;62(10):1844-52.
- Neuman MD, et al. Comparative effectiveness of regional versus general anesthesia for hip fracture surgery in adults. *Anesthesiology* 2012;117(1):72-92.
- Zywił MG, et al. The influence of anesthesia and pain management on cognitive dysfunction after joint arthroplasty: a systematic review. *Clin Orthop Relat Res* 2014;472(5): 1453-66.
- World Health Organization. *Cancer pain relief*. Geneva; 1986. http://apps.who.int/iris/bitstream/10665/43944/1/9241561009_eng.pdf.
- American Geriatrics Society 2015 Beers Criteria Update Expert Panel. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc* 2015;63(11):2227-46.
- Devabhakthuni S, et al. Analgosedation: a paradigm shift in intensive care unit sedation practice. *Ann Pharmacother* 2012;46(4):530-40.
- Gower LE, et al. Emergency department management of delirium in the elderly. *West J Emerg Med* 2012;13(2): 194-201.
- Kosar CM, et al. Effect of preoperative pain and depressive symptoms on the development of postoperative delirium. *Lancet Psychiatry* 2014;1(6):431-6.
- Oh ES, et al. Preoperative risk factors for postoperative delirium following hip fracture repair: a systematic review. *Int J Geriatr Psychiatry* 2015;30(9):900-10.
- Inouye SK, et al. Clarifying confusion: the confusion assessment method. A new method for detection of delirium. *Ann Intern Med* 1990;113(12):941-8.