CE

Opioid Use Disorder: Challenges During Acute Hospitalization

Carla C. Turner, DNP, ACNP-BC, Susanne A. Fogger, DNP, PMHNP-BC, and Sandra L. Frazier, MD, FASAM

ABSTRACT

Opioid use is a major public health concern increasing the volume of need for medical care and the national tragedy of accidental overdose deaths. Patients with opioid use disorders have higher numbers of emergency department visits, acute hospitalizations, and complications secondary to opioid use. Acute care nurse practitioners are challenged to manage increasingly complicated patient encounters related to opioid use. This article addresses effective strategies for inpatient management of opioid use disorder including identification and the use of measurement-based tools, as well as providing supportive care.

Keywords: acute care nurse practitioners, managing opioid withdrawal, opioid dependence

All authors are affiliated with the University of Alabama at Birmingham in Birmingham. Carla C. Turner, DNP, ACNP-BC, is Assistant Professor in acute, chronic and continuing care. Susanne A. Fogger, DNP, FAAN, is Professor in family, community and health systems. She is available at sfogger@uabmc.edu. Both assigned to the School of Nursing. Sandra L. Frazier, MD, FASAM, is the assistant dean of professional development and is assigned to the School of Medicine. *In compliance with national ethical guidelines, the authors report no relationships with business or industry that would pose a conflict of interest.*

Opioid use disorder (OUD), which includes prescription and illicit use, is a major public health concern in the United States and a leading cause of accidental deaths. Drug overdose deaths, primarily caused by opioids, have exceeded vehicular deaths annually since 2009, and the numbers continue to climb.[1] The fuel behind this national crisis is partially related to changes in the philosophy of pain management to a more aggressive treatment of nonmalignant pain. This shift contributed to increased availability and systemic opioid exposure, resulting in dependence and addiction. The increase in use, coupled with the resurgence of heroin, contributed to a deluge of opioid-related deaths, increasing from 4,030 in 1999 to 18,893 in 2014.[2] Additionally, in 2011, the Drug Abuse Warning Network estimated 1.25 million emergency department visits related to illicit drug use such as heroin, and an additional 1.24 million visits were associated with nonmedical use of prescription drugs.[3]

While accidental overdose deaths have increased so have the number of patients with OUD who have significant comorbidities such as bacterial endocarditis, human immunodeficiency virus, hepatitis, and mental health disorders. As a group, they have a

This CE learning activity is designed to augment the knowledge, skills, and attitudes of nurse practitioners and to assist in their understanding of caring for patients with opioid use addiction during acute hospitalizations.
At the conclusion of this activity, the participant will be able to:
A. Differentiate 3 types of opioid consumers when managing acute pain
B. Identify specific history and physical findings suggestive of OUD
C. Evaluate medications and risk reduction strategies that help manage symptoms of OUD, withdrawal, or overdose
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The authors do not present any off-label or non-FDA-approved recommendations for treatment.
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higher annual direct health care cost than nonopioid abusers.[4] Health care providers, especially those in acute settings, face challenges to manage higher rates of patient encounters with opioid misuse. To meet this challenge, it is important for all clinicians to assess for any substance use and manage pain and withdrawal symptoms to ensure the best possible patient outcomes.

Unidentified and untreated illicit drug use is a major predictor for leaving against medical advice (AMA) and is linked to negative health outcomes including death.[5] Evidence-based management of opioid withdrawal using clinical assessment tools and medication, such as buprenorphine and clonidine, can decrease drug cravings and the risk of patients leaving AMA. The purpose of this article is to promote a greater understanding of opioid addictions and offer nurse practitioners (NPs) working in hospital settings guidance on identification, management, and discharge planning for patients with active OUD during acute hospitalization.

BACKGROUND

In the late 1990s, medical providers were challenged to improve pain management in all settings. Pain became known as the fifth vital sign, which facilitated a keen focus on assessing and treating pain. Prescriptions for analgesics, specifically opioids, increased drastically in an effort to improve the management of acute and chronic pain. Over the past 20 years, US pharmacies dispensed 3 times the volume of opioids, contributing to a large community supply and easier accessibility.[6] For example, in 2012, there were 289 million prescriptions filled for opioids in the US, practically 1 prescription per citizen.[7] This increase in availability translates to more people exposed to the mood-altering effect of opioids, increasing the risk of developing an addiction with ongoing use. One unintended consequence of restricted opioid availability through intensified monitoring and legislation has been the escalation of the street value of prescription opioids. The depletion of prescription sales on the street posed a supply challenge for those with OUD. Caused in part by increased heroin availability and lower cost, patients who would have never thought about using heroin have found the drug to be a cheaper, more available alternative.[1] The risk to the user is heroin mixed with synthetic substances such as fentanyl that can vastly increase the potency without the user's knowledge, resulting in accidental overdose or death.[2]

Regulatory Efforts to Reduce Opioid Use

In an effort to prevent inappropriate use of opioids, there has been an increase in regulatory supervision such as narcotic monitoring at the state level. However, legislation; provider education; increased funding; and interventions at the federal, state, and local levels have not generated measurable improvements. This is conversely shown by the continued rise in opioid-related deaths. In an urgent effort to reduce opioid overdoses, the US Health and Human Services instituted a tripartite focus, which includes provider training, prescribing guidelines, increasing the use of community naloxone, and expanding the use of medication-assisted treatment for substance use disorders.[8] One hopeful note is the Comprehensive Addiction Recovery Act, signed into law in 2016, which supports provider training, substance use treatment, and needed services for those in early recovery. For the first time, the Comprehensive Addiction Recovery Act authorizes NPs and physician assistants to treat OUD, which will impact the availability of providers to treat OUD in the primary care setting.[9]

ADDICTION: A CHRONIC DISEASE

Patients on opioid therapy for chronic pain may be physically dependent on their medication; however, physical dependence is not addiction. Addiction is a brain disease with neurologic changes within the dopaminergic reward pathways. Substances like opioids produce chemical changes in the brain that make consumption more desirable than other activities. The American Society of Addiction Medicine defines addiction as a primary chronic disease, involving reward circuits resulting in the alteration of neurotransmission, as well as interactions within the structures.[10] When exposed to specific drugs, the brain's reward center is overstimulated and floods with dopamine, creating a sense of calm and intense pleasure. The manifestation of addiction uses its powerful influence known as the 4 C's of addiction:

Craving, loss of Control, Compulsion to use, and continued use despite Consequences.

Addiction is similar to other chronic illnesses such as type 2 diabetes, asthma, and hypertension, which encompass environmental, genetic, and lifestyle factors. Common environmental factors associated with addiction are high stress, drug availability, and early physical or sexual abuse.[11] Like other chronic diseases, addiction is characterized by exacerbations or cycles of relapse, and lifestyle choices are critical in disease stabilization. Management includes facilitating the development of effective coping mechanisms, skill building, and recognizing symptoms and behaviors associated with triggers and relapse. Additionally, medication-assisted treatment (MAT) can block drug cravings and benefit the patient in providing stability to support recovery. Unfortunately, access to treatment for OUD can be limited and expensive and poses challenges for patients seeking help, especially in rural communities. Detoxification alone will not ensure patients' recovery because they remain vulnerable to incessant drug cravings and triggers to use.[12]

SCREENING FOR OPIOID USE DISORDER

The number of patients admitted to acute care facilities for conditions associated with OUD, such as overdose, motor vehicle accidents, sepsis, or other acute illnesses, continues to rise. Providing optimum care requires the identification and treatment of this chronic debilitating disorder, as well as other substance use issues. However, patients may not communicate their opioid use, which can contribute to the difficulty in identifying acute opiate withdrawal, resulting in misdiagnosis and mismanagement.

During the assessment process, it is important to differentiate between 3 types of opioid consumers when managing acute pain: the compliant patient who is prescribed opioids for a chronic health condition, a patient who is on MAT and stable, and the patient who has OUD who is self-medicating and will require intervention. The first 2 types of medically prescribed opioid users will require maintenance of their baseline dosages and receive either higher doses or the addition of a different opioid to manage pain from an acute issue. However, those with OUD should be met with empathy and compassion. This encounter generates an opportunity for education about the possibilities of receiving MAT or undergoing detoxification with follow-up in a substance treatment program. If they select detoxification, it is important to caution about the risk for lethal overdose should relapse occur.

Successfully screening and identifying patients with active OUD requires changing how the provider perceives and approaches the patient. The most recent demographics suggest that the characteristics of opioid users have changed over the past 15 years. Providers' perception can contribute to overlooking patients at risk. Unlike the demographics of heroin users in the 1960s, who were primarily urban, young minority males, current heroin users are older and now reside in rural or suburban areas, and their initial introduction is through opioid prescription use. For example, in 2013, non-Hispanic whites within the ages of 18 to 44 years had the highest death rate caused by heroin overdose.[13] A recent study involving the veteran population reported that nonmedical use of prescription opioids was a major risk factor for the initiation of heroin use.[14] The trigger is the initial use of prescription opioids. An opioid use history should be assessed during admission screening.

To facilitate the identification of patients with OUD, it would be beneficial for providers to include the substance use history as part of the screening for current medication use, rather than in the social history. It is critical for providers to demonstrate a nonjudgmental tone during the assessment because patients are often reluctant to disclose their drug use because of shame, guilt, fear, hopelessness, and denial.[15] Simply inquiring about nonmedical use of medications as well as behavior such as borrowing a family member's pain medication can help initiate the conversation. NPs can review past medical records and online controlled substance monitoring databases to facilitate the identification of patterns of opioid use. The interview can be prefaced with "I will be asking questions that are sensitive, but necessary to facilitate appropriate care for your condition." One helpful question would be "Have you ever had a problem controlling your use of alcohol or other drugs, such as marijuana, cocaine, heroin,

methamphetamines, or prescription drugs?" If the patient answers "yes," then following with "Have you ever overused prescription drugs or took them more often than they were prescribed?" A closing statement that may solicit additional information is "I ask these very important questions because I need to know what drugs or medications you have been using before this hospitalization, so I can provide you with the best and safest care." This may open the dialogue for the patient to communicate their use of substances.

During the physical examination, it is important to ask about unusual dermatologic markings, such as bruising or scarring in the antecubital and other venous access sites. A few objective physical signs of substance use disorders include abscesses, track marks, pinpoint pupils, chronic cough, hematemesis, and burns on fingertips. If the individual is at high risk for substance use disorder, it is important to assess further through a urine drug screen. In an effort to maintain trust and open communication, it is best to inform the patient that a urine specimen is needed to assess for drugs and toxins.

If the patient is opioid dependent because of opioid misuse or legitimately being treated for chronic pain, the provider must be aware of several important issues. Chronic opioid use alters sensitivity to pain medication, and the patient will require higher adjustments to medication and anesthesia needs.[16] Withholding pain medications from someone who is opioid dependent is unethical and creates unnecessary suffering with poor patient outcomes. Providers should consult their pharmacists for recommendations for equivalent dosing for acute pain management. In addition, consultation with an addiction specialist can be beneficial for recommendations about the management of withdrawal, as well as the facilitation of outpatient follow-up. Once OUD has been identified, it is imperative to ask additional information such as "What drug are you using, when was the last time you used, and how much are you using?" When asking about the last dose, inquire if the patient has brought their supplies to the hospital. It is important to the patient's safety to discuss the dangers of bringing any drugs into the hospital or taking anything not prescribed by the hospital provider. The patient should be clearly informed that the use of any substance in the hospital not prescribed by his or her provider increases the risk of overdose, drug interactions, or worsening of acute conditions. Providers should document specific instructions discussed with the patient regarding overdose risks and the use of nonprescribed drugs during hospitalization.

WITHDRAWAL ONSET AND COMPLICATIONS

The onset of withdrawal symptoms depends on the half-life of the opioid. For example, if the patient uses short-acting opiates, symptoms can occur within 6 to 12 hours and with long-acting opiates, 30 hours after the last dose. Withdrawal symptoms can be grouped into early or late symptoms. Early symptoms include agitation, anxiety, insomnia, muscle aches, increased lacrimation, rhinorrhea, sweating, and yawning. Late symptoms include abdominal cramping, diarrhea, pupillary dilation, nausea, vomiting, and piloerection. Some providers believe that intervention is not necessary because withdrawal from opioids is not life-threatening. However, severe withdrawal can be painful, and the nausea, vomiting, and diarrhea can cause fluid and electrolyte imbalances, cardiac dysrhythmias, acute kidney injury, and rhabdomyolysis.[17,18] Failure to treat withdrawal symptoms can exacerbate underlying issues, which prompt hospitalization and can result in patients leaving AMA. The use of standardized assessment tools is beneficial for evaluating and treating opioid withdrawal. For example, when the patient is in active withdrawal, it is helpful to use the Clinical Opiate Withdrawal Scale or the Subjective Opioid Withdrawal Scale as standard tools to assess the severity of withdrawal symptoms.[19] These tools can facilitate the management of supportive therapy as well as communicate the measured response to treatment.

MANAGING OPIATE WITHDRAWAL

Patients who are in acute opioid withdrawal during hospitalization pose many challenges for NPs. The provider may attribute symptoms to other acute, traumatic, or metabolic disorders, and few acute care providers have experience in managing withdrawal symptoms with supportive therapy. If an addiction medicine specialist is on staff, a consult could prove to

be very beneficial in navigating the complexities of patients with opiate use disorder. When withdrawal symptoms are recognized, the primary goal is to provide effective and humane treatment, managing withdrawal if indicated, which can be safely supported with medication.[20] During hospitalization, the clinician can foster patient readiness for entry into treatment after acute medical needs are met. Educating the patient around options for recovery can occur with each interaction. It is important to begin planning for ongoing treatment depending on the patient's needs and previous attempts to interrupt the addiction cycle.

The Food and Drug Administration has approved both methadone and buprenorphine as first-line treatment for opioid withdrawal as well as for longer-term maintenance therapy for OUD. Although methadone and buprenorphine have a primary role in pain management, their use for opioid dependence and detoxification is highly regulated to restrict prescribing.

Methadone has been used to treat opioid dependence since the early 1970s through federally regulated methadone clinics. Buprenorphine has the advantage of being available through primary care providers who have applied for an additional waiver to their Drug Enforcement Agency license.[9]

Both methadone and buprenorphine have relative equal efficacy for managing withdrawal symptoms and long-term maintenance therapy; however, buprenorphine has a lower risk of toxicity, which contributes to its increasing use in MAT. It undergoes extensive hepatic metabolism and will require dose adjustment for hepatic dysfunction.[21] Methadone's limitations include having a variable bioavailability and half-life, which increase the risk for iatrogenic overdose. Providers trained in methadone initiation should administer this medication for pain management, as well as titration for withdrawal.[22] Buprenorphine is contraindicated if the patient is stable on opioids for pain because coadministration will precipitate withdrawal and increase the patient's pain.

Clonidine or other alpha-2 agonists are third line for opioid withdrawal management but may be preferred by some facilities that prohibit the use of supportive agents like buprenorphine or methadone because of the potential for diversion.[20–22] Clonidine, a nonnarcotic alpha-2 agonist, acts on noradrenergic auto receptors to decrease norepinephrine release and decreases the noradrenergic hyperactivity associated with opioid withdrawal. Clonidine and other alpha-2 agonists are generally safe and effective for managing most symptoms of withdrawal, but hypotension requires monitoring when in use. In hospital settings, ethical management of withdrawal symptoms should include buprenorphine or methadone with the use of clonidine and other medications for symptomatic relief.

During the physical withdrawal period, vital signs are monitored, especially if using clonidine. Parameters for blood pressures should be included in the treatment orders. Electrolytes are closely evaluated for dehydration and replaced as indicated. As needed, medication provides symptomatic relief to manage discomfort (Table). Teaching about anticipated withdrawal symptoms, reassurance, and encouragement can be helpful because the patient's mood may plummet. Drug craving can be intense and worsen during withdrawal, increasing the risk of the patient leaving AMA because of intolerable physical discomfort.[23] Withdrawal may last between 72 hours to over a week depending on the half-life of the opioid.

When managing a patient's withdrawal from any substance, it is good practice to use an evidence-based tool to more accurately assess and monitor progress. Some protocols for managing withdrawal use the Clinical Opiate Withdrawal Scale to determine the severity of symptoms and adjust treatment. Buprenorphine doses range from 0.3 mg to 3.6 mg intramuscularly or 1.2 mg to 16 mg per day using sublingual tablets.[22,24] The initial dose of clonidine should be a test dose of 0.1mg. Withhold clonidine for systolic blood pressure less than 90 or diastolic less than 50.[22] Clonidine does not address withdrawal symptoms, such as insomnia, muscle aches, or drug cravings. A clonidine patch is not recommended in the early phase of detoxification when dose titration may vary depending on the individual's symptoms. In addition, hypotension can persist after the removal of the patch. However, clonidine patches may be useful if a low dose is required during the taper.[21,22] NPs can skillfully manage withdrawal symptoms by attending to and providing comfort measures. NPs

Table. Symptomatic Relief of Withdrawal Symptoms

Insomnia	Trazodone	50-100 mg	Oral	At bedtime for 4 days then as needed
	Promethazine	25-75 mg	Oral	At bedtime as needed
	Temazepam	10-30 mg	oral	At bedtime as needed
Nausea/vomiting	Metoclopramide	10 mg	Oral or IM	Every 4 to 6 hours as needed for a total of 30 mg daily
	Dimenhydrinate	50-100 mg	Oral or IM	Every 4 hours as needed not to exceed 400 mg daily
	Prochlorperazine	5-10 mg	Oral or IM	Every 8 hours as needed not to exceed 40 mg
Abdominal cramps	Propantheline	15 mg	Oral	Every 8 hours as needed
	Hyoscine butylbromide	20 mg	Oral	Every 8 hours as needed
Diarrhea	Loperamide	4 mg initially	Oral	2 mg after each unformed stool
Muscle cramps	Acetaminophen	325-650 mg	Oral	Every 4 hours as needed, a maximum daily dose of 4,000 mg
	Naproxen	500 mg	Oral	Every 12 hours with meals for 4 days then reduced to as needed
	Quinine sulfate	300 mg	Oral	Every 12 hours as needed
Headaches and pain	Ibuprofen	400 mg	Oral	Every 8 hours as needed
	Acetaminophen	325-650 mg	Oral	Every 4 hours as needed, a maximum daily dose of 4,000 mg
Agitation and anxiety	Hydroxyzine	25-50 mg	Oral	Every 8 hours as needed
	Diazepam	5 mg	Oral	Every 8 hours as needed, taper over 3 to 5 days

IM = intramuscular.

are encouraged to consult with addiction medicine for additional guidance.

DISCHARGE PLANNING

It is important to ensure the patient is connected to his or her outpatient provider, as well as have a referral to the form of treatment the patient is willing to commit to at the time of discharge. Connecting the patient with a warm handoff to additional treatment can make a difference in the process of recovery. Providers may feel frustrated when patients return to using, but recovery is complex. Old behaviors take time to change, but collaborative discharge planning can increase the likelihood of the patient's success. Care coordination can involve referring the patient to an intensive outpatient treatment, a 12-step program and counseling, and facilities and programs that offer nonopioid treatment for addiction and manage MAT. In addition, all patients with opioid use for either chronic pain on MAT or who have a history of illicit use should be educated on the importance of having at least 1 naloxone kit for emergencies related to overdose. If a prescription is required for a naloxone kit, this can be included with other discharge medication. Demonstration of the kit's use can be done alone with other instructions.

Some patients struggle to remain drug free even with treatment and may need a provider within the area who can prescribe buprenorphine or naltrexone for longer supportive treatment. The Substance Abuse and Mental Health Services Administration's website (http://www.samhsa.gov/medication-assisted-treatment/physician-program-data/treatment-physician-locator) can assist in locating providers to treat OUD.

IMPLICATIONS FOR PRACTICE

OUD is a growing public health concern and a significant challenge for acute care providers. Acute hospitalization is not the time to alter the treatment of patients stable on opioids for chronic pain or those on MAT. NPs need to be able to assess for and identify symptoms of OUD and provide care and support to patients who need assistance withdrawing from opioids. The treatment team can facilitate outpatient referral sources to assist in the transition from inpatient to outpatient treatment. It is helpful to recall that OUD is a chronic remitting illness like diabetes. It is imperative that NPs participate in the development of local guidelines and protocols to aid in the management of withdrawal during acute hospitalization. For all patients with acute pain, limit the amount of medication prescribed with instructions for use of alternatives to narcotics. Further requirements for opioids would require reevaluation concerning the risk/benefit of ongoing use. Patients managed on opioids for chronic pain and those with a history of OUD should be provided with a prescription of naloxone for emergency care. NPs play an important role in the early identification of OUD during acute hospitalization and facilitate management to improve patient outcomes and, ultimately, save lives. JNP

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