Cancer-Related Pain Assessment

Monitoring the effectiveness of interventions

Eva Gallagher, PhD, Barbara B. Rogers, CRNP, MN, AOCN®, ANP-BC, and Jeannine M. Brant, PhD, APRN, AOCN®, FAAN

BACKGROUND: Cancer-related pain is a major health problem because of its magnitude, the subjective nature of the pain experience, and the complexity of the disease, making it difficult to assess and control. When assessment is not performed, poor pain control can result.

OBJECTIVES: This article provides an overview of the components of a comprehensive cancer pain assessment.

METHODS: A review of the healthcare literature was performed.

FINDINGS: Nurses play a key role in pain assessment by establishing patient trust and rapport, which helps to break down barriers that may stand in the way of effective pain assessment and management.

ASSESSMENT AND CONTROL OF CANCER-RELATED PAIN is difficult because of its magnitude, the subjective nature of pain, and the complexity of the disease. The majority of patients with advanced disease have significant pain, and patients with cancer of the pancreas, bone, brain, lymphoma, lung, and head and neck have the highest prevalence (Breivik et al., 2009). Most pain results from the underlying cancer (85%), secondary to antineoplastic therapies (17%), and comorbidities unrelated to cancer (9%) (Breivik et al., 2009). If cancer-related pain is present, a comprehensive pain assessment is critical for successful treatment of the pain. However, assessment can be challenging because of the subjective nature of pain and the time required for thorough assessment.

When assessment is not performed or not done well, poor pain control can result. A comprehensive pain assessment is particularly important when the desired goals are finding the cause of the pain, identifying optimal therapies, and achieving better pain control for the patient during a period of time (National Comprehensive Cancer Network [NCCN], 2016). A key component of cancer pain assessment is soliciting critical information from the patient and using that information to monitor relief when various interventions are employed. All patients with cancer should be screened for pain at regular intervals. Screening for pain involves assessing if the patient is experiencing pain. If pain is present, a comprehensive pain assessment should be performed.

Comprehensive Cancer Pain Assessment

The comprehensive pain assessment should focus on the location(s) of the pain, type and quality of pain, pain history (onset, duration, and course), pain intensity (amount of pain experienced at rest or with movement, ability to sleep, or if it interferes with activities), temporality, referral pattern, and radiation of pain to other areas of the body. Attention should be given to associated factors that exacerbate or relieve the pain (e.g., heat, guided imagery) and the current pain management plan, including patient response to current therapy, prior pain therapies, and breakthrough or episodic pain not controlled with the existing pain regimen (Ngamkham, Holden, & Wilkie, 2011). In addition, assessment for refractory pain that does not respond to standard analgesic therapy is important because it occurs in 10%–20% of patients (Afsharimani, Kindl, Good, & Hardy, 2015). Comprehensive assessment should explore associated distress (anxiety), functional impact, and related physical, psychological,
social, and spiritual factors (Paice, Lacchetti, & Bruera, 2016). Patient goals for comfort and function should be obtained and documented. Finding out what pain level is tolerable for the patient is critical, as is working with the patient to achieve this level.

**Location**
Many patients have more than one pain site. Asking patients where the pain is located or if pain exists in more than one area is important. Having the patient point to the painful area(s) can be helpful in determining pain etiology and interventions.

**Intensity**
Because pain is inherently subjective, patient self-report is the current standard for assessment. Pain intensity can be quantified using a 0–10 numeric scale, a categorical scale, or a pictorial scale if patients are nonverbal or unable to use a rating scale (e.g., the Faces Pain Rating Scale) (NCCN, 2016). Pain intensity is useful to assess the effectiveness of the interventions (Ngamkham et al., 2012).

**Quality**
Three main types of pain exist: neuropathic, somatic, and visceral. The latter two also are considered nociceptive pain, or pain related to damage to body tissue; neuropathic pain is related to nerve damage. Neuropathic pain can be caused by nerve disorders, such as nerve involvement by a tumor pressing on cervical, brachial, or lumbosacral plexi; postherpetic neuralgia or peripheral neuropathies secondary to treatment (chemotherapy, radiation fibrosis); phantom limb pain; or other chronic diseases. Neuropathic pain can be described as burning, shooting, tingling, radiating, lancinating, or numbness. Patients sometimes describe neuropathic pain as feeling like an area of their body is on fire or an electrical jolt. With phantom limb pain, the pain is perceived by a region of the body no longer present (American Physiological Association, 2006); may be described as shooting, stabbing, squeezing, throbbing, or burning; and can come and go or be continuous (Subedi & Grossberg, 2011).

Somatic pain is referred to as skin pain, tissue pain, or muscle pain. The nerves that detect somatic pain are located in the skin and deep tissues. Somatic pain is described as achy, throbbing, or dull, and is typically well localized. Somatic pain accompanies arthritis, bone or spine metastases, lower back pain, and orthopedic procedures (Subedi & Grossberg, 2011).

Visceral pain can have clinical features that vary in different phases of pathology. True visceral pain arises as a diffuse and poorly defined sensation that is perceived in the midline of the body (at the lower sternum or upper abdomen). Pain from different visceral organs can have differing areas of presentation. For example, bladder pain can be referred to the perineal area, cardiac pain can lead to discomfort down the left arm and neck, and left ureter issues can cause pain referred to the left lower quadrant and loin. Visceral pain is perceived more diffusely than noxious

**FIGURE 1.**
CHRONIC PAIN SYNDROMES ASSOCIATED WITH CANCER TREATMENT

**CHEMOTHERAPY-RELATED PAIN SYNDROMES**
- Bony complications of long-term corticosteroid use
- Avascular necrosis
- Vertebral compression fractures
- Carpal tunnel syndrome
- Chemotherapy-induced peripheral neuropathy
- Raynaud’s syndrome

**HORMONAL THERAPY–RELATED PAIN SYNDROMES**
- Arthralgias
- Dyspareunia
- Gynecomastia
- Myalgias
- Osteoporotic compression fractures

**RADIATION–RELATED PAIN SYNDROMES**
- Chest wall syndrome
- Cystitis
- Enteritis and proctitis
- Fistula formation
- Lymphedema
- Myelopathy
- Osteoradionecrosis and fractures
- Painful secondary malignancies
- Peripheral mononeuropathies
- Plexopathies: brachial, sacral

**STEM CELL TRANSPLANTATION–MEDIATED GRAFT-VERSUS-HOST DISEASE**
- Arthralgias/myalgias
- Dyspareunia, vaginal pain
- Dysuria
- Eye pain
- Oral pain and reduced jaw motion
- Paresthesias
- Scleroderma-like skin changes

**SURGICAL PAIN SYNDROMES**
- Lymphedema
- Postamputation phantom pain
- Postmastectomy pain
- Postradical neck dissection pain
- Postsurgery pelvic floor pain
- Post-thoracotomy pain/frozen shoulder
- Postsurgery extremity pain (e.g., sarcoma)

CANCER-RELATED PAIN ASSESSMENT

Cutaneous stimulation with respect to location and timing, and is described as squeezing, pressure, cramping, distention, dull, deep, and stretching. Visceral pain is commonly manifested in patients after abdominal or thoracic surgery, and secondary to liver metastases or bowel or venous obstruction (Fink, 2000).

Pain quality is used by clinicians to diagnose the pain syndrome and tailor interventions. For example, anticonvulsants are often used for neuropathic pain, whereas nonsteroidal anti-inflammatory agents are helpful in patients with somatic pain.

Temporality
Temporality considers the experience of pain during a period of time for the individual. Pain can be intermediate, constant, or breakthrough. Intermediate pain occurs occasionally, whereas chronic pain occurs at all times. Breakthrough pain is an acute exacerbation of pain that occurs with well-controlled background pain and requires further evaluation (Sperlinga et al., 2015).

Additional Factors
Psychological factors (e.g., patient distress, family/caregiver and other support, psychiatric history) can influence the pain experience and should be considered, assessed, and referred if found (Ripamonti, Santini, Maranzano, Berti, & Roila, 2012). Risk factors for the undertreatment of pain (e.g., a history of addiction), meaning of the pain to the patient and caregiver, cultural beliefs toward pain, pain expression, spiritual or religious considerations, and existential suffering may influence the pain experience and the overall management plan. In addition, the patient may not have adequately evaluated his or her pain.

Cancer pain can be divided into acute and chronic. Acute pain syndromes usually accompany diagnostic or therapeutic interventions, whereas chronic pain syndromes usually are directly related to the cancer itself or to cancer therapy (see Figure 1). Chronic pain also can be unrelated to the cancer. New onset pain should be evaluated for potential recurrent disease, a second malignancy, or for a late effect from a prior cancer treatment.

Nurses play a key role in effective pain assessment and management. Conducting a thorough assessment using a standardized tool can provide a consistent assessment. When pain is present, a thorough pain assessment should be completed each time the patient is examined. The rationale behind this is to look for trends in effectiveness of treatment, as indicated by pain intensity and functional outcomes. Patients and caregivers should be educated regarding tolerance, addiction, changes needed in the current medication regimen, and the rationale behind pain care decisions (Ripamonti et al., 2012).

Assessment Tools
Various methods and tools exist to assess pain. Pain intensity should be quantified using a numerical or categorical scale. The Faces Pain Rating Scale may be a good option with patients who have difficulty understanding other scales, including children, older adults, and patients with cultural differences or language barriers.

Another useful tool for measuring chronic cancer pain is the Brief Pain Inventory (BPI). The BPI allows patients to rate the severity of their pain and the degree to which their pain interferes with their lives (Ferreira et al., 2015). The BPI is available in a short (9 items) and long (17 items) form and quantifies various measures using a 0–10 numerical scale. Based on these numerical ratings, cut points have been established to categorize pain severity as mild, moderate, or severe.

The Patient-Reported Outcomes Measurement Information System (PROMIS, 2015) pain interference instruments measure the self-reported consequences of pain on relevant aspects of the patient’s life. This includes the extent to which pain hinders engagement with social, cognitive, emotional, physical, and recreational activities. Pain interference also incorporates assessment of sleep quality and enjoyment in life. The adult cancer instruments were developed for use with any patient with cancer. The 35-item test assesses pain interference during the past seven days (PROMIS, 2015).

The McGill Pain Questionnaire is a valid, reliable, and sensitive multidimensional measure of cancer pain and quantifies neurophysiologic as well as psychological domains of pain. It includes four main measures: location, intensity, quality, and pattern of the pain (Dudgeon, Baubertas, & Rosenthal, 1993).

Many other pain assessment tools exist, and each has use in different settings and with different patient populations. Care should be taken to choose the tool that is best for each situation.

Breakthrough Cancer Pain Assessment
Despite the availability of several therapies for treatment of breakthrough cancer pain, no widely validated tool for its diagnosis is currently being used (Sperlinga et al., 2015). Clinicians use a variety of tools to determine the nature and characteristics of the patient’s symptoms with the hopes of effectively identifying and treating breakthrough cancer pain.

Breakthrough cancer pain often is described as incident pain or idiopathic pain. Incident pain occurs in relation to a specific
activity or event. For example, patients may experience incident pain each time they get up from a chair. Others might experience incident pain with certain stimuli, such as cold temperature or fabric touching an affected area of the skin. The predictable occurrence of pain in certain settings allows patients to anticipate the pain and to take analgesics prior to activity or to modify their activity to reduce the occurrence of pain (LeBlanc, Howie, & Abernethy, 2016).

Idiopathic breakthrough pain is not predictable. For example, a patient might suffer significant intermittent and cramping abdominal pain. A clear trigger may not be known; therefore, in the case of idiopathic breakthrough cancer pain, premedication or altered behavior to minimize the pain are not an option (LeBlanc et al., 2016). Opioids with a rapid onset, such as transmucosal immediate-release fentanyl, may be an effective way to quickly control idiopathic breakthrough cancer pain (LeBlanc et al., 2016).

End-of-dose failure is a common and distinctive type of pain, but is not always classified as true breakthrough cancer pain. End-of-dose failure occurs when an existing analgesic medication wears off toward the end of the patient’s dosing interval. The pain is not caused by any underlying pathophysiology but, rather, the pharmacokinetics of how the opioid metabolizes. Adjustments to the dosing interval and amount of medication given can be very helpful in managing this type of pain (LeBlanc et al., 2016).

No single best tool exists to elicit and assess breakthrough cancer pain. Webber, Davies, Zeppetella, and Cowie (2014) created and validated an instrument for clinical use among patients experiencing breakthrough cancer pain. However, the 14-question breakthrough pain assessment tool has been evaluated only in a single language and country (English; the United Kingdom) and is currently undergoing further validity and reliability assessment across larger populations.

A careful history can be used to identify the type and frequency of breakthrough cancer pain episodes, resulting in greater understanding of the treatments that might more effectively relieve this type of pain. The history must include information about the timing, quality, location, intensity, and duration of the pain, as well as any associated exacerbating or alleviating factors (NCCN, 2016).

**Special Populations**

**Nonverbal Patients**

Verbal reporting of pain is not possible for some individuals, such as those who are intubated, sedated, or unresponsive, or who have other reasons (i.e., cognitive impairment) that make it impossible to verbally report pain. Patients with minor cognitive impairment can often report pain, but those with major impairment may not be able to verbally state the presence or intensity. Individuals who are unable to verbally report pain are at risk of under-assessment and under-treatment (Booker & Haedtke, 2016).

Pain can be communicated nonverbally. Methods include squeezing a hand, raising a finger, blinking, or nodding the head.

The location of the pain can be communicated by the individual pointing out the location on a body map and then using the 0–10 intensity rating. However, the healthcare provider must keep in mind that the accurate indication of the level of pain and its location may be affected if the patient has vision or hearing impairment. Other methods indicating pain include changes in facial expressions, mood, activity level, and vital signs, but these changes are usually present only in acute pain. Facial expressions can range from relaxed to partially or fully tightened to grimacing. Activity level, or upper limb movements in particular, can be noted as no movement, partially bent, fully bent with finger flexion, and permanently retracted. Compliance with mechanical ventilation can be assessed as tolerating movement, coughing but tolerating ventilation most of the time, fighting the ventilator, and unable to control ventilation (Stites, 2013).

In the nonverbal individual, presence of pain should not be assessed through a single method. For example, vital signs alone are not reliable in indicating the presence and level of pain, except in the acute pain setting. However, a change in vital signs can alert the practitioner to the need for further assessment. The use of nonverbal-specific methods to assess pain in a nonverbal individual can lead to more frequent assessments of pain and better use of analgesics (Gelinas, Puntillo, Joffe, & Barr, 2013).

**Patients With Substance Use Disorders**

Physiologic and psychological aspects of substance use disorders (SUDs) can make pain more difficult to assess and manage (Chang & Compton, 2013). Chronic opioid use can affect the processing of pain stimuli through sympathetic stimulation, hypothalamic-pituitary-adrenal dysregulation, and proinflammatory immune system activation (Chang & Compton, 2013). This can result in increased sensitivity to pain or decreased tolerance to pain in patients with a disease of addiction, leading to a worsened pain experience (Chang & Compton, 2013; Chu, Angst, & Clark, 2008). In addition, patients with chronic pain who have previously received treatment for addiction are more likely to relapse compared to individuals without pain who also were previously treated for addiction (Caldeiro et al., 2008).

Increased craving for opioids may be associated with pain. It is unclear if individuals who have addiction disorders are at an increased likelihood of relapse when they are also managed for pain (Tsui et al., 2016). A study by Tsui et al. (2016) reported that patients with treated SUDs who experience chronic pain may be vulnerable to opioid craving and, therefore, to relapse. Evidence

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**IMPLICATIONS FOR PRACTICE**

- Provide comprehensive assessment and adequate treatment of pain to improve physical functioning, the performance of activities of daily living, psychological and emotional status, and social interactions.
- Understand that special populations require tailored assessment and interventions.
- Develop the appropriate skills to adequately address pain in these special populations.
does exist that individuals with SUDs can be successfully treated with opioids (Savate & Schofferman, 1995). Prevention of relapse is central to effectively using opioids to manage chronic pain in the individual with addictive disorder. Therefore, treatment goals should include prevention of Sudan exacerbation. For individuals with SUDs who have chronic pain managed with opioids, assessment of the risk of relapse should be completed regularly and consideration given to referral to an SUD specialist as needed. Four A’s should be regularly assessed: analgesic response, activities of daily living, adverse effects of the treatment regimen, and aberrant behaviors. The identification of relapse in individuals with SUDs is complicated by their tendency to hide problematic analgesic use for fear of losing access to medications.

If relapse does occur, supporting the patient’s efforts toward recovery is important. If opioid detoxification is necessary, it should be done gradually so as not to elicit opioid withdrawal symptoms (usually no more than 20%–25% dose reduction every two days) (Chang & Compton, 2013). The relapse should not be characterized as a treatment failure but as part of the process of recovery from disease (Chang & Compton, 2013).

**Conclusion**

Comprehensive pain assessment at regular intervals is critical to optimal pain management. Adequate assessment and treatment can improve physical functioning, the performance of activities of daily living, psychological and emotional status, and social interactions. In some patients, verbal assessment of pain may not be possible and alternate pain assessment tools may be needed. Special populations require tailored assessment and interventions. Clinicians should have appropriate skills to adequately address pain in these special populations.

Eva Gallagher, PhD, is a senior director at Agios Pharmaceuticals in Cambridge, MA; Barbara B. Rogers, CRNP, MN, AOCN®, ANP-BC, is a nurse practitioner at Fox Chase Cancer Center in Philadelphia, PA; and Jeannine M. Brant, PhD, APRN, AOCN®, FAAN, is an oncology clinical nurse specialist and nurse scientist at the Billings Clinic in Montana. Gallagher can be reached at evagallagher5@gmail.com, with copy to CJONEditor@ons.org. (Submitted November 2016. Accepted February 13, 2017.)

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