Assessing Cancer Pain in the Adult Patient

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The high prevalence of pain in the cancer population underscores why pain management is integral to comprehensive cancer care. How well pain is controlled can have a profound effect on the cancer experience for both patient and family. The goals of pain assessment are to prevent pain if possible, and to identify pain immediately should it occur. This can be facilitated by standardized screening of all cancer patients for pain, on a routine basis, across care settings. A comprehensive assessment of pain follows if a patient reports pain that is not being adequately managed. Oncology nurses play a huge role in pain assessment and management throughout the course of a patient’s disease. A basic understanding of the types of pain seen in the cancer population as well as inferred neurophysiologic pain mechanisms and temporal patterns of pain can help focus the pain assessment. This in turn will lead to targeted pain management strategies.

"I can't emphasize enough that the pain blinds you to all that is positive—I mean the real bad pain. It just closes you down. At one hospital people didn't believe me. It's a terrible feeling when you can't convey that to others . . ." —A cancer patient

Approximately one-third of patients who are receiving active therapy for their cancer and two-thirds of those with advanced disease experience pain.[1,2] The type of cancer, stage of disease, and site(s) of metastatic spread, as well as other factors, all influence the prevalence of pain. In addition, a proportion of individuals who have been cured of their cancer or are living with cancer as a chronic disease will develop a chronic pain syndrome as a consequence of the cancer or its treatment.[3-7] This high prevalence of pain underscores why pain management is integral to comprehensive cancer care. How well pain is controlled can have a profound effect on the cancer experience for both patient and family.[8-12] Pain assessment is the underpinning of pain management. The goals of pain assessment are to prevent pain if possible, and to identify pain immediately should it occur. This can be facilitated by standardized screening of all cancer patients for pain, on a routine basis, across care settings (inpatient, clinic, and home).[13] Standardized screening for pain can be as simple as asking the patient, “Do you have pain?” A comprehensive assessment of pain follows if a patient reports pain that is not being addressed or adequately managed. A basic understanding of the types of pain we see in the cancer population as well as inferred neurophysiologic pain mechanisms and temporal patterns of pain can help focus the pain assessment. This in turn will lead to targeted pain management strategies.

Categories of Cancer Patients With Pain

It is useful to categorize cancer patients with pain into five different groups.[14] This provides a framework within which to approach their care: both day-to-day pain management and discharge planning. Although these groupings are discrete, patients frequently have a combination of different types of pain; overlap between groups is therefore expected.

Group 1 consists of patients with acute cancer-related pain associated either with the diagnosis or with therapy such as surgery, chemotherapy, or radiation therapy. Group 2 is made up of patients with chronic cancer-related pain either related to cancer progression or associated with cancer therapy. Group 3 consists of patients with preexisting chronic pain who then develop cancer-related pain. Group 4 comprises patients with a history of drug abuse. This group can be further subdivided into those who are actively abusing drugs, those who are in a methadone maintenance program, and those with a remote history of drug abuse. Group 5 consists of actively dying patients with cancer-related pain.

Types of Pain

Pain is a complex phenomenon that includes not only a tissue damage response but also a suffering response (emotional, existential, psychological, social, and financial).[14-17] The tissue damage response and suffering component contribute in varying degrees to each person's perception of pain. This is captured in the concept "total pain."[18] Because of this multidimensionality, pain assessment is enhanced by an interdisciplinary approach.[19]
Pain Based on Inferred Neurophysiologic Mechanisms

Two major types of pain—nociceptive pain and neuropathic pain—have been described in the cancer patient.[20]

- **Nociceptive Pain**—Nociceptive pain is further subdivided into somatic pain and visceral pain. Somatic pain occurs as a result of activating pain-sensitive structures or nociceptors in the cutaneous and deep musculoskeletal tissues. This pain is typically well localized and may be felt in the superficial cutaneous or deeper musculoskeletal structures. Examples of somatic pain include bone metastases, postsurgical incisional pain, and pain accompanying myofascial or musculoskeletal inflammation or spasm.[20] Somatic pain is usually responsive to the nonsteroidal anti-inflammatory drugs, the opioid drugs, and steroids.

Visceral pain results from infiltration, compression, distension, or stretching of thoracic or abdominal viscera (eg, liver metastases or pancreatic cancer). This type of pain is poorly localized, often described as deep, squeezing pressure, and may be associated with nausea, vomiting, and diaphoresis, especially when acute.[20] Visceral pain is often referred to cutaneous sites that may be remote from the site of the lesion—for example, shoulder pain associated with diaphragmatic irritation. Visceral pain is usually responsive to the nonsteroidal anti-inflammatory drugs (NSAIDs), the opioid drugs, and steroids.

- **Neuropathic Pain**—Neuropathic pain results from injury to the peripheral and/or central nervous system. In the cancer patient, neuropathic pain most commonly occurs as a consequence of tumor compressing or infiltrating peripheral nerves, nerve roots, or the spinal cord. In addition, surgical trauma or chemical- or radiation-induced injury to peripheral nerves or the spinal cord from cancer therapies may result in this type of pain. Examples of common neuropathic pain syndromes include metastatic or radiation-induced brachial or lumbosacral plexopathies, epidural spinal cord and/or cauda-equina compression, postherpetic neuralgia, and painful chemotherapy-induced neuropathies.[20] Neuropathic pain is often described as having sharp, shooting, electric shock-like qualities that are unfamiliar to the patient. It can also be described as a constant dull ache, sometimes with a pressure or vice-like quality with episodic paroxysms of burning and/or electric shock-like sensations.[20] Neuropathic pain is often severe, very distressing to the patient, and sometimes difficult to control.

**Although partially responsive to the NSAIDs and to the opioid drugs, neuropathic pain is also responsive to adjuvant drugs such as antidepressants, anticonvulsants, steroids, local anesthetics, and N-methyl-D-receptor antagonists (NMDA) such as ketamine.**[21,22]

A combination of these drugs is frequently used.

Pain Based on Temporal Pattern

Cancer pain can be both acute and chronic. Acute pain is characterized by a well-defined pattern of onset and the pain may be accompanied by physiologic signs of hyperactivity of the central nervous system such as a rapid pulse and elevated blood pressure. Acute pain usually has a precipitating cause—for example, small-bowel obstruction, a painful dressing change, or a pathologic fracture. The pain tends to be time-limited; it tends to respond to analgesic drug therapy and, where possible, to treatment of the precipitating cause of the acute pain.

Acute pain can be further subdivided into subacute pain and incident-related pain.[14] Subacute pain describes pain that comes on over several days, often with increasing intensity, and may be associated with a variety of causes such as a progressive pathologic process, a gradually distending bladder that has not been recognized, or an analgesic regimen that has not been titrated upward to accommodate for a progressive painful disease process.[14] Incident-related pain is associated with movement, dressing changes, or other activities. Because the trigger for intermittent pain can often be identified, the nurse, through appropriate use of analgesics prior to the pain-provoking event, can have a significant impact on decreasing these painful episodes for the patient.

Chronic pain differs from acute pain in its presentation. These differences in presentation are important to recognize, as patients with chronic pain are at risk for unrecognized and undertreated pain. Chronic pain is defined as pain that persists for longer than 3 months.[14] Adaptation of the autonomic system occurs and the patient does not exhibit the physiologic signs of pain that may be seen in those with acute pain (eg, rapid pulse and/or elevated blood pressure). Poorly relieved chronic pain can contribute to fatigue, depression, insomnia, general despair, withdrawal from interaction with others, and desire for death.[10-12]

**Breakthrough pain** is defined as a transient increase in pain to greater than moderate intensity, occurring on a baseline pain of moderate intensity or less.[14,23] Breakthrough pain has a diversity of characteristics. In some patients, for example, it is characterized by marked worsening of pain at the end of the dosing interval of regularly scheduled analgesics. This is called end-of-dose failure. In
other patients, it occurs by the action of the patient or the nurse—for example, when turning or having a dressing change—and is referred to as incident pain (described above).

Clinical Assessment of Pain in Cancer Patients
The clinical assessment of pain is carried out within the framework of goals of care, stage of disease, prognosis, and patient and family values. It includes both observation and interview.[14,24] The basic principles of a pain assessment are outlined in Table 1. It is based on the premise that the person experiencing the pain is the expert on their pain; the clinician's role is to sort out the etiology of the pain complaint and to arrive at a targeted management approach with the patient. If the patient is too ill or cognitively impaired to respond to the questions, a family member or care provider is asked to give the pain history as best they can. Taking a focused pain history involves assessing the parameters described in the following subsections.
### Table 1: Clinical Assessment of Pain in the Cancer Patient: Principles

- Believe the patient’s complaint of pain
- Take a focused pain history and place it temporally within the patient’s cancer history
- Assess the characteristics of each site of pain including site, intensity, pattern of referral, aggravating and relieving factors, influence on activities of daily living and quality of life
- Clarify the temporal aspects of the pain; acute, chronic, incident, breakthrough
- List and prioritize each pain complaint with the patient
- Evaluate the response to previous and current analgesic regimens or other pain relief measures
- Evaluate the psychological state of the patient
- Ask if the patient has a history of alcohol or drug dependency
- Observe the patient for nonverbal signs of pain including guarding, wincing, and crying out, especially when turned or moved
- Clarify realistic pain relief goal with the patient; include intensity and functional impact
- Recognize that the patient who is near to death may have multiple symptoms including delirium, which will complicate assessment
- Examine the patient with attention to site(s) of pain and areas of possible referral
- Reassess the patient’s response to pain therapy and management of side effects

Adapted from Foley.[14]

### Onset

Have the patient describe when the pain first began. Was it associated with a particular activity or known medical event? Did other symptoms, such as nausea or vomiting, accompany the onset of pain?

### Site(s)

Ask the patient to tell you where the pain is felt. Frequently cancer patients will have multiple sites of pain. Each site of pain needs to be assessed, as the management approach may differ depending on the etiology of that particular pain. The patient may point to the site(s) of pain on their own body.
Quality of the Pain
Have the patient describe the quality of each pain. Word descriptors used by patients to describe their pain help to arrive at an inferred pain mechanism. This in turn may influence the choice of pharmacotherapy. For example, sharp, shooting, electric shock description of pain, often described by the patient as being "unfamiliar," suggests a neuropathic component to the pain.[25] Such pain may be responsive to the adjuvant drugs as well as to opioid analgesics.

Severity of the Pain
Have the patient describe the severity of each pain. It is particularly important that the nurse recognize the significance of escalating pain within the context of that particular patient's disease process, value system, goals of care, and nearness to death. Treatment decisions take all of these factors into account. A variety of tools for measuring pain severity are available for use in clinical practice. These include numerical estimates (for example, 0 indicating no pain and 10 indicating the worst pain imaginable); word descriptors such as none, mild, moderate, and severe; visual analog scales where a 10-cm line is anchored at one end by no pain and the other end by the worst possible pain; happy/sad faces; and a variety of tools that are available to assess pain in the severely cognitively impaired (these tools are referenced and described in more detail in a later paragraph on pain assessment tools and their application). Ask the patient the amount of distress caused by each site of pain. In this way each pain can be prioritized.

Although numerical estimates are the most frequently used method of assessing severity of pain and adequacy of pain relief, some patients cannot use a numerical estimate; in these cases, one of the other tools may be more appropriate. Consistency in using a particular assessment tool with an individual patient is likely to enhance communication among team members regarding the efficacy of a pain management approach.

Some patients will consistently underreport their pain. The reasons are varied but include a patient's appraisal of the consequences of reporting pain,[9] for example, having an opioid dosage increased or a new chemotherapy protocol delayed until the pain is brought under control. These outcomes may not be acceptable to the patient and therefore they choose not to report the pain. Other patients do not report escalating pain because previous reports of pain have led to ineffective management. In other words, they "give up."

Pain Severity at Times of Different Activity
Assess the patient's pain intensity at rest, on movement, and in relation to daily activity and analgesic schedule. Asking questions such as, "How much pain is relieved when you take the pain medication?" "How long does the relief last?" and "Are side effects present?" helps establish if the appropriate drug has been selected, dose efficacy, and if the time interval between doses for this patient is correct. More global 24-hour and 1-week assessments of the adequacy of pain management in general include asking the patient their pain scores "right now," "at its best," "at its worst," and "on average."[26]

Exacerbating and Relieving Factors
Identifying factors that increase or relieve the patient's pain can be helpful both in arriving at a pain diagnosis and in giving the nurse the opportunity to reinforce techniques that the patient has found useful in the past to relieve pain. A patient with cancer who reports rapidly escalating back pain, with a bandlike quality, which is worse when lying in bed and better when standing, is considered to have cord compression until proven otherwise.[27] Early recognition of cord compression and treatment, frequently by steroids and/or radiation therapy, may prevent paraplegia even in the last few weeks or months of a patient's life. Escalating back pain may be the only sign of an impending cord compression.

Impact of the Pain on Day-to-Day Life
Ask the patient how the pain has impacted their day-to-day life, including mood and ability to move, eat, sleep, read, watch television, and interact with others. Positive change in any of these parameters can be used as one measure of the effectiveness of a pain management approach.

Impact of the Pain on Psychological State
The interface between pain and suffering is well known. In clinical situations, when patients are asked, "What does this pain mean to you?" and "What do you think is causing the pain?" a flood of suffering and fear is often expressed. Patients are fearful of what dying will be like, of uncontrolled and excruciating pain, of being a burden on their family, and of being "drugged out." Some clinicians, when meeting a patient in severe chronic pain for the first time, ask if the pain has ever been so bad that the individual has thought of harming him or herself. Again, the response may
indicate that suicide has been considered as an option if the pain is not controlled or if "things get too bad." These are important questions for an experienced clinician to ask, so that the patient's vulnerabilities and anxieties are verbalized, suicide vulnerability factors are identified, and education and support from other members of the interdisciplinary pain team including psychiatrists, psychologists, social workers, and chaplains are mobilized.[11,12] The patient's worries and fears need to be identified, acknowledged, and addressed if pain is to be adequately controlled.[9,10,28-30]

### Table 2: Challenges When Assessing Pain in the Far-Advanced Cancer Patient

- Multiple concurrent medical problems
- Multiple symptoms and symptom clusters
- Hepatic and renal failure and susceptibility to drug accumulation and adverse side effects
- Prevalence of delirium when close to death
- Requires more time than with patients who are less ill
- Patients become easily fatigued and may be short of breath
- May be in "too much pain" or bothered by other symptoms to answer questions
- Possible tendency of family members to answer questions on patient's behalf

**Pain Treatment History**
Ask the patient very specifically about what approaches have been used to manage pain in the past—both pharmacologic (including over-the-counter medication) and nonpharmacologic—and how effective those approaches have been. Included should be previously prescribed analgesics, dosages, time intervals, routes of administration, effects, side effects, and the reasons why a particular approach was discontinued. Fear of recurrence of previously experienced side effects (eg, sedation, nausea, mental haziness, and constipation) may make a patient reluctant to start a new analgesic regimen. Focusing attention on their concerns and giving a clear explanation of how side effects will be managed if they do occur can do much to allay these fears. This is a commitment that will require close monitoring of the patient's response to therapy and a rapid response to the management of any adverse side effects that may occur.

**Examination of the Pain Site**
Examining the site of the pain and possible referral sites may help identify the source of the pain.[14] This is always done within knowledge of the patient's disease process, extent of disease, possible referral sites of pain, and goals of care. The source of the pain may be obvious, for example, a distended abdomen associated with a full bladder, bowel obstruction, or liver distention; a prior skin eruption with postherpetic neuralgia; a bony deformity or inability to use a limb due to a pathologic fracture; or an open fungating infected wound or decubiti.

In the advanced cancer patient, the cause of pain is frequently multifactorial requiring a multimodal approach. Whenever possible, within the constraints of nearness to death and goals of care, an attempt is made to treat the cause of the pain as well as the pain itself. The extent of the diagnostic workup depends on the goals of care, and the likely impact of the results of the diagnostic workup on
the patient's treatment plan and overall quality of life. The benefit to burden ratio to the patient is of foremost concern and needs to be discussed fully with the patient and family or the patient's health-care proxy.[14]

Patient Expectations for Pain Relief

Although most pain can be adequately controlled to the patient's satisfaction, and that is always the goal, the complete absence of pain is not possible for some patients. Realistic goal setting with the patient, and establishing what level of pain would be acceptable and would not interfere with quality of life and function, is part of the assessment. The balance to achieve is maximum pain relief and minimal adverse side effects of treatment. Realistic goal setting is likely to diminish later frustration and loss of trust in the clinician's competence.

Patients at Risk for Inadequate Assessment and Management

Certain cancer patients with pain have been identified as being "at risk" for inadequate assessment and management. These include the elderly,[31] children,[32] the cognitively impaired,[33] those with language barriers or from different cultures,[34,35] the disenfranchised,[36,37] and those with a history of drug abuse.[38,39] These tend to be patients "without a voice" or whose voice is not heard, not respected, or not believed. In addition, cultural factors and religious factors may play a role in the pain management of certain groups. Sometimes there is a mismatch between the normative values of the patient and the health-care provider. These high-risk patients need to be identified in any inpatient cancer unit or oncology practice; steps must be taken to ensure that their pain is appropriately assessed and managed.

Pain Assessment Tools and Their Applications

A variety of validated pain assessment tools are available for use in the hospital and home settings. Any pain assessment tool must include intensity of pain, relief of pain, psychological distress, and functional impairment. Examples of these tools are the Memorial Pain Assessment Card,[40] the Wisconsin Brief Pain Inventory,[26] and the McGill Pain Questionnaire and the McGill Home Recording Chart.[41] Simpler scales that measure pain intensity only include numerical rating scales, visual analog scales, and Likert or verbal rating scales.[24,42] For the patient with severe cognitive impairment, various assessment tools are also available.[33,43,44]

In the advanced cancer patient, when multiple symptoms are common,[44-46] it can be very useful to follow the intensity of pain and other symptoms in graph form longitudinally. With this approach the interrelatedness among symptoms may become clearer. Figure 1, the Edmonton Symptom Assessment System Graph, illustrates this approach.[47] Finally, keeping a daily pain diary can be a very useful way for patients to share information with their clinician about the pattern of their pain, the impact of the pain on their day-to-day activities, analgesic use with effect and side effects, and overall mood.[48]
Conclusions

Oncology nurses play a huge role in pain assessment and management throughout the course of a patient's disease and across care settings. Although the oncology nurse will usually be part of an interdisciplinary team, he or she will often be the one responsible for assessing pain, administering analgesics, monitoring for adequacy of pain relief and presence of side effects, and educating the patient and family. Communicating with other members of the oncology team, ensuring continuity of pain management across care settings, is an important part of this responsibility. The oncology nurse is one of the patient's strongest, most consistent, and most reliable advocates. Knowledge of the principles of pain assessment lays the foundation for targeted, competent, and compassionate care.

Figure 1: Edmonton Symptom Assessment System Graph—A useful tool to show the interrelatedness among symptoms (available at www.palliative.org).
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