Evidence-based Management of Cancer Pain

Jason A. Webb and Thomas W. LeBlanc

Objective: *To provide a brief review of common palliative care practices in the assessment and management of cancer pain for practicing oncology nurses.*

Data Sources: *Published literature as indexed in Medline, relevant guideline documents, textbooks, and clinical experience.*

Conclusion: *All persons with cancer should undergo a comprehensive pain assessment, using validated instruments when possible, and receive expert-guided cancer pain therapy. Specialist palliative care consultation should be engaged as needed to provide an extra layer of support.*

Implications for Nursing Practice: *By better understanding cancer pain assessment and management strategies, nurses will be best equipped to meet the needs of patients and families.*

Key Words: *pain, cancer, palliative care, opioids, WHO pain ladder, review.*

Pain management is one of the cornerstones of palliative oncology care. Unfortunately, pain is a common aspect of many people's lived experience of illness when facing cancer. According to World Health Organization (WHO) estimates, pain is experienced by approximately one third of those receiving active cancer treatment, and by well over half of people with more advanced disease (some estimates are as high as 90% in this group).[1] Given its prevalence and the marked impact pain often has on overall quality of life,[2] clinicians who care for people with cancer must have a working knowledge of the optimal pain assessment and management. In this article we present a practical overview of the topic, addressing definitions of pain and its etiologies, assessment methods, opioid pharmacology and prescribing, and non-opioid management strategies. The authors performed a substantive up-to-date review of the literature, including reviewing current national practice guidelines, published literature as indexed in Medline, textbooks, and clinical experience, to inform the content presented here.

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Pain and its Etiologies

Pain is formally defined by the International Association for the Study of Pain as "an unpleasant sensory and emotional experience associated

with actual or potential tissue damage or described in terms of such damage."[3,5] Being a subjective experience, there is no real diagnostic test for pain, but pain in patients with cancer typically signals an underlying pathology, either because of the disease itself or as a consequence of its treatment. There are three primary types of pain that relate to the underlying pathophysiology: 1) somatic, 2) visceral, and 3) neuropathic.

Somatic pain occurs when pain receptors ("nociceptors") are activated in skin or deep tissues. This generally manifests as a "dull" or "aching" sensation. Common causes include bony infiltration by tumor and surgical incisions. Most musculoskeletal and myofascial pain syndromes are manifestations of somatic pain as well. *Visceral pain*, on the other hand, occurs when nociceptors are activated by infiltration or distortion of organs themselves. A classic example of visceral pain is that which may occur in pancreatic cancer because of tumor involvement of the organ itself. This typically manifests as "deep" or "squeezing" and poorly localized pain, sometimes also with "referred pain" to other sites (akin to the experience of shoulder pain in patients with biliary colic). Visceral pain may be associated with nausea/vomiting, or with other autonomic manifestations like diaphoresis. Somatic and visceral pain are considered "nociceptive" pain, which is differentiated from "neuropathic pain." *Neuropathic pain* is a result of actual injury to the nervous system, either because of physical compression, infiltration, or destruction of nerves themselves, or chemical disruption or destruction of nerve fibers because of chemotherapies, etc. Patients' experiences of neuropathic pain can be quite heterogeneous, but classically this is more of a "burning" or "tingling" type of pain, and may be associated with a phenomenon called "allodynia," a type of hypersensitivity state whereby typically non-painful stimuli cause pain.

The most effective pain treatment directly addresses the pathologic mechanism causing the pain. Hence, adequate assessment is the first step in pain management. Neuropathic pain is often treated quite differently than nociceptive pain, so the underlying pathophysiology is not only important for academic purposes, it has practical implications for pain management. It is also important to recognize that patients may have "mixed" pain – that is, multiple pain etiologies may co-exist in the same patient. In the case of a mixed pain, syndrome multimodality treatment approaches are indicated. Pain duration (ie, acute vs. chronic) can also significantly impact management. For example, chronic neuropathic pain warrants markedly different approaches than acute somatic pain caused by a bone metastasis.

Bone pain is probably the most common type of pain in patients with cancer, followed by infiltrative processes of the nerves and hollow viscera (ie, bowel).[6] One epidemiologic study of bone pain from cancer estimated at least 280,000 cases in the US.[7] The authors believed that this was likely an underestimate of the true prevalence, and the burden of bony metastatic disease most likely continues to increase as cancer incidence increases overall. Neuropathy is quite common among patients receiving cytotoxic chemotherapies, particularly the vinca alkaloids like vincristine, or taxanes such as paclitaxel and docetaxel.[8] However, newer therapeutic agents are increasingly associated with neuropathy, such as bortezomib or lenalidomide, both commonly used in the treatment of multiple myeloma.[9] One recent estimate suggests that as many as one in three people with cancer pain have neuropathic pain.[10]

Measurement and Clinical Assessment

The measurement of a patient's experience of pain is often assumed to be relatively straightforward and, as such, this topic receives comparatively less attention than it deserves. Being a subjective phenomenon, pain is experienced differently by each person. Similarly, each patient's tolerance for pain differs, as do their expectations of what is considered tolerable, and what impacts their life in a meaningful way. Without a good measure of these issues, defining a treatment target can be rather difficult. Thus, the development of a shared plan with tangible expectations and goals to guide pain management is key.

There are a variety of methods available for pain assessment, and no single method is endorsed by pain specialists. However, professional society guidelines are clear that formal assessments should be part of standard clinical practice.[5,11] In fact, the Joint Commission for the Accreditation of Healthcare Organizations requires the use of pain scales as a condition of its accreditation process, thus emphasizing the importance of