Cancer pain management

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Pain is one of the most feared and debilitating symptoms of cancer. Cancer pain can be controlled in most patients with strategies that are available in the community. By correcting misconceptions about opioids and providing comprehensive assessment and pain management, a patient's quality of life can be improved.

More than half of people with cancer at any stage of the disease experience pain, and one-third of those describe it as severe.[1] The presence of pain has a significant impact on every aspect of a person's life – from the quality of sleep obtained to the ability to work, from appetite to relationships, and from mood to the ability to think. The experience of cancer pain for a patient is complex and is influenced by psychological and social issues, as well as past experiences and beliefs. It is important that all doctors involved in the care of patients with cancer are able to perform a thorough assessment of pain and provide excellent pain management. The US National Comprehensive Cancer Network has published guidelines for the management of patients with cancer pain.[2]

This article explores the assessment and management of patients with cancer pain, barriers to the management of patients with cancer pain and patient education.

Assessing patients with cancer pain

All patients with cancer should be assessed at each visit for the presence of pain because cancer pain is so common. The causes of cancer pain are shown in Table 1.

A comprehensive pain assessment of a patient with cancer should investigate the presence of persistent and breakthrough pain, the type and severity of the pain, and the impact the pain is having on the patient (Table 2). Valid pain assessment tools should be employed to assess the severity of pain and the patient's response to treatment (Table 3).[3]

IN SUMMARY

- **Cancer pain can be controlled in the majority of patients.**
- **Cancer pain is common and screening for pain should be performed at each patient visit.**
- **Strong opioids with paracetamol are first-line management in all patients with moderate to severe cancer pain.**
- **When opioids are used to treat patients with cancer pain, addiction and clinically significant tolerance are rare.**
- **Misconceptions regarding opioids are common, so all patients benefit from education when commencing opioids.**
- **Adverse effects of opioids can be prevented or effectively managed.**
- **Anticancer treatment, adjuvant therapy, nonpharmacological treatments and addressing psychosocial issues are all important elements of pain management.**

continued

Table 1. Causes of cancer pain

- Direct pressure of the cancer on the organs, bone or nerves
- Poor circulation due to the cancer obstructing blood vessels
- Obstruction of the bowel or urinary tract
- A side effect of treatment
- Pathological fractures
- Musculoskeletal pain because of inactivity

Oncological emergencies presenting with pain

- Bowel obstruction
- Impending or actual bone fracture
- Spinal cord compression
- Brain metastases

Table 2. Comprehensive assessment of patients with cancer pain

- Location of pain, including radiation
- Temporal factors, including onset, duration and frequency of pain
- Character of pain – i.e. sharp, dull, aching, burning, stabbing etc
- Severity of pain measured on a pain assessment scale
- Interference by pain with daily living – e.g. sleep, mood, ability to walk, ability to work and relationships
- Factors that aggravate and relieve the pain
- Current and past analgesia and response to analgesia
- Patient's impressions on the meaning of pain and beliefs related to pain, which may act as barriers to pain relief
- Associated psychological symptoms, distress or depression
- Current cancer status and intercurrent medical problems
- Physical examination
- Radiological examination and laboratory tests, if appropriate

Each type of pain that the patient experiences should be addressed separately and assessment repeated when the patient experiences a new type of pain. The multidimensional nature of pain should be assessed, including the psychosocial and spiritual dimensions.

The patient is the key factor in the assessment, because pain is a subjective experience. Patient populations at high risk of poor pain control include the elderly, children, those from a different cultural or linguistic background, and those with a past history of substance abuse.[4]

The aim of pain assessment is to determine the type of pain the patient is experiencing and the likely cause (e.g. pain shooting down the leg may be neuropathic pain from cancer pressing on a nerve root in the back; see the box on page 35 for description of the types of pain experienced) and any complicating factors that may be exacerbating the pain.

Table 3. Pain assessment tools

- Pain numerical rating scale – The patient is asked 'what is your pain level on a scale of 0 to 10 where 0 is no pain and 10 is the worst pain imaginable?'
- Categorical pain scale – The patient is asked 'would you rate your pain as none, mild, moderate or severe?'
- Visual analogue scale such as the Johns Hopkins pain rating instrument (Figure)
- Use of a pain diary
- Pain FACES scale[3]

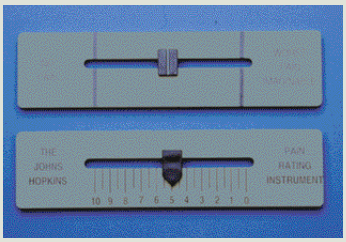

Figure. Johns Hopkins pain rating instrument.

From Hockenberry MJ, Wilson D, Winkelstein ML: Wong's Essentials of Pediatric Nursing, ed 7, St. Louis, 2005, p. 1259. Used with permission. Copyright, Mosby.

Patient-related barriers to cancer pain management

Many barriers have been identified that may prevent a patient from reporting pain or using adequate analgesia.[5] The most common barriers and ways to effectively address them are given below.

- **Fear of addiction:** patients can be reassured that using opioids such as hydromorphone, morphine or oxycodone for pain rarely causes addiction.
- **Fear that using strong pain relief now means that nothing will be available later if the pain gets worse:** adjustments to medication and dose can be made that will allow pain control to be achieved.

- **Fear that once using strong pain relievers, they can never be stopped:** if anticancer treatment removes the source of pain then pain relief can be weaned.
- **Fear of side effects:** it is true that morphine does cause side effects, but often a patient will become tolerant to the side effects after three to five days and will no longer experience them. Constipation is always a side effect and must be prevented with the regular use of laxatives.
- **Fear of injections:** most pain relievers are now given as tablets.
- **Not wanting to trouble or distract the doctor:** all doctors are busy but pain control for patients is a high priority.
- **Stoicism:** there is no benefit from being in pain and pain causes significant interference with many aspects of daily life.
- **Fatalism:** pain can be controlled.

Principles of managing patients with cancer pain

Managing patients with cancer pain involves a team approach with the GP and the patient at the centre. Other members of the team include the medical and radiation oncologists, nurse, pharmacist, occupational therapist, physiotherapist, pastoral carer, social worker, diversional therapist, palliative care specialist, pain specialist and psychologist. Treatment for patients with pain should be aggressive and given early; however, pain is rarely the only symptom in patients with cancer. Other symptoms and the presence of distress must be addressed concurrently to achieve optimal pain relief.

Patient and caregiver education is an essential part of the pain management plan in order to address potential misconceptions about pain and opioid use (see patient handout on page 39).

Anticancer therapy is most important and where possible should be given to reduce the cancer, which is the cause of the pain. Palliative radiotherapy is equally effective in single and multiple fractions for relief of pain from bone metastases. Bisphosphonates have been shown to reduce pain and skeletal complications of bone metastases in patients with myeloma, breast cancer or prostate cancer.[6,7]

Evidence-based pain management guidelines are available online.[2]

Pharmacological treatment

Paracetamol or an NSAID such as ibuprofen or naproxen should be considered to treat patients with mild pain. The paracetamol dose should be reduced by 25 to 50% in patients with hepatic impairment. NSAIDs are particularly useful if inflammation is present but careful consideration should be given to their use in cancer pain because of potential toxicity, especially gastrointestinal and renal toxicity. COX-2 inhibitors such as celecoxib or meloxicam can also be used to treat patients with cancer pain.

In patients with moderate or severe pain, opioids can be used in combination with paracetamol (Table 4).[8]

Opioids

All pain management guidelines recommend a trial of a short-acting opioid for pain levels scored between five and 10 on a scale of 0 to 10, where 0 is no pain and 10 is the worst pain imaginable. The short-acting opioid should be given regularly and not on an as-needed basis, and should be titrated according to the pain levels and side effects to achieve the correct dose for each individual.

All patients commencing an opioid should also start a bowel regimen with a laxative to prevent constipation – for example, docusate sodium with senna two tablets twice a day or macrogol 3350 one sachet once a day dissolved in 125 mL

Types of pain experienced by patients with cancer

- Nociceptive pain is due to the involvement of soft tissues or bone and is aching, throbbing or sharp in nature.
- Neuropathic pain is due to the involvement of nerves and may be burning, tingling or shooting in nature. It may be associated with sensory changes over the affected area or muscle weakness.
- Visceral pain is due to the involvement of organs and may be cramping or gnawing in nature.

Table 4. Starting dosages of analgesics for average pain severities

Severity of pain (scale)*	Analgesic and dosage†
Mild pain (1 to 4)	Paracetamol two 500 mg tablets every four hours (up to eight tablets per day) Or an NSAID
Moderate pain (5 to 6)	Paracetamol two 500 mg tablets every four hours (up to eight tablets per day) And/or oral morphine 5 to 10 mg or oxycodone 5 mg every four hours
Severe pain (7 to 10)	Paracetamol two 500 mg tablets every four hours (up to eight tablets per day) And/or oral morphine 10 mg or oxycodone 5 to 10 mg every four hours

* Pain severity is scored on a scale of 0 to 10, where 0 is no pain and 10 is the worst pain imaginable.
† Halve the dose for elderly patients.

Table 5. Dose equivalence for strong opioids for patients with cancer pain

Type of opioid*	Equivalent dosages
Immediate-release opioids	
Morphine	15 mg orally every four hours
Oxycodone	10 mg orally every four hours
Hydromorphone	3 mg orally every four hours
Methadone	Only commence with advice from a pain specialist or palliative care specialist
Sustained-release opioids	
Morphine	45 mg orally twice a day
Oxycodone	30 mg orally twice a day
Hydromorphone	16 mg orally once a day
Fentanyl	25 µg/hour patch replaced every 72 hours

* Pethidine is not recommended for the treatment of patients with cancer pain. Buprenorphine patches are not recommended for cancer pain because they are partial agonists; also, they are seven-day patches and therefore cannot be rapidly titrated in patients with moderate to severe pain.

of water and an antiemetic such as metoclopramide 10 mg three times a day for use as needed.

Patients with severe pain (rated seven to 10) should be reassessed within 24 hours of starting an opioid, and patients with moderate pain (rated five to six) should be reassessed within 48 hours. Once the pain is stabilised, a long-acting opioid can be commenced with a short-acting opioid available for breakthrough pain at a dose equivalent to one-sixth of the total daily dose (Table 5). The starting dose of morphine for oral titration is 5 to 10 mg (although the National Comprehensive Cancer Network guidelines suggest 5 to 15 mg)[2] every four hours (Table 4). If pain is unchanged after an hour, the dose should be doubled. If the pain is reduced but not relieved, the dose should be repeated.

Uncontrolled pain requires reassessment of the patient and a new dosing regimen.

Ongoing management of pain involves reassessment of the patient at each consultation, titrating analgesics if the pain level changes, and providing the patient with written instructions and ongoing education as needed.

Opioids may be given by alternative routes. For example, morphine may be given by subcutaneous injection for those unable to take opioids orally. The relative potency of subcutaneous morphine is double that of oral morphine so the dose should be halved when calculating the equivalent analgesic dose of subcutaneous morphine. Opioids can also be given intrathecally or epidurally, which may reduce central adverse effects.[9]

Table 6. Common adverse effects of opioids

Adverse effect	Management
Constipation	Occurs almost universally and requires prophylaxis with use of a laxative
Nausea and vomiting	Often resolves after three days. All patients should be provided with metoclopramide (10 mg three times a day) or haloperidol (1.5 mg at night or twice a day) to take if nausea occurs
Sedation	Common at the beginning of treatment and often resolves after two to three days
Dry mouth	May be managed with frequent sips of water

Adverse effects of strong opioids

Strong opioids have a number of adverse effects (Table 6). The presence of myoclonus, confusion or hallucinations suggests toxicity, which should be managed by reducing the opioid dose, ensuring adequate hydration is given and administering haloperidol 1.5 to 3 mg twice a day.[10] Switching to another opioid may also help to manage toxicity.[11]

Choosing a strong opioid

There is no significant evidence for the benefit of one opioid over another. Morphine has the advantage of being inexpensive and available in a number of formulations. Morphine metabolites accumulate in patients with renal impairment so another opioid should be trialled or the dose frequency of immediate-release morphine should be reduced to two or three times daily depending on the severity of renal impairment.

Transdermal fentanyl should only be commenced in patients with stable pain. The advantages of transdermal fentanyl are a reduced incidence of constipation,

the convenience of only needing to change the patch every three days and the dose not needing to be reduced in patients with renal impairment. Other opioids that can be used in patients with renal impairment include oxycodone and hydromorphone, with dose reduction and careful titration when needed.

Sustained-release oxycodone has biphasic distribution and so analgesic plasma concentrations are achieved sooner than with other controlled-release preparations.

Methadone has some N-methyl-d-aspartate (NMDA) receptor antagonist activity and is suitable for patients with complex pain issues. Its use is limited to specialists familiar with it because it has variable pharmacokinetics depending on a patient's previous opioid use.

Dependence, tolerance and addiction

Tolerance to the analgesic effects of opioids is rarely seen in patients with cancer pain and increasing requirements for analgesia are more often attributable to progressive disease.[12] Physical dependence is a physiological adaptation to chronic opioid dosing and does occur. Opioids should not be withdrawn abruptly because withdrawal syndrome, including sweating, tachycardia, agitation and flu-like symptoms, can occur. Addiction rarely occurs in this setting.[13-15]

Coanalgesics

Coanalgesics, also known as adjuvants, are medications used primarily for an indication other than pain but which have an analgesic action for pain that is partially responsive to opioids such as neuropathic pain. These adjuvants include antidepressants, anticonvulsants, corticosteroids, antiarrhythmics and local anaesthetics.

Antidepressants effective in the treatment of patients with pain include: tricyclic antidepressants such as amitriptyline and nortriptyline; selective serotonin reuptake inhibitors such as fluoxetine and sertraline; and serotonin noradrenaline reuptake inhibitors such as duloxetine and venlafaxine. However, the use of antidepressants to treat patients with pain is off-label. Anticonvulsants effective in the treatment of patients with pain include gabapentin, pregabalin (both indicated for the treatment of patients with neuropathic pain), carbamazepine and sodium valproate (both used off label). A trial of an antidepressant or anticonvulsant should be given for patients with neuropathic pain that is not fully responsive to opioid analgesia.

Corticosteroids such as dexamethasone are useful for pain associated with raised intracranial pressure, nerve compression or bone pain.

Mexiletine is an antiarrhythmic agent that may be beneficial in patients with neuropathic pain (off-label use). A topical local anaesthetic such as lignocaine applied to the painful area is useful and results in little systemic absorption. Ketamine, an NMDA antagonist, may be used in specialist palliative care units to treat patients with resistant neuropathic pain (off-label use).

Interventional techniques

Some pain is not adequately controlled using oral, transdermal or subcutaneous routes and may need intrathecal analgesia or a nerve block. Examples of such pain are sacral plexopathy and pancreatic cancer pain, for which a coeliac plexus block may improve pain levels and indeed survival. Referral to a pain clinic is necessary for these treatments and many clinics will see urgent referrals promptly.

Nonpharmacological treatments

Evidence exists for the use of psychological, physical and spiritual strategies in patients with cancer pain (Table 7).

Quality of life and psychological issues

Pain is often related to depression either as an exacerbating factor or as a consequence of the pain. Concomitant depression should be treated in patients with cancer pain. Anxiety, insomnia and fear can all exacerbate pain and should be addressed to optimise analgesia.

Table 7. Nonpharmacological treatments for cancer pain

Psychological strategies
- Hypnosis
- Relaxation
- Imagery
- Psychotherapy and structured support
- Distraction
- Cognitive restructuring
- Support in communicating with health professionals

Physical strategies
- Transcutaneous electrical nerve stimulation
- Massage
- Acupuncture
- Positioning (e.g. sitting position)
- Walking aids
- Immobilisation
- Use of heat or cold
- Exercise

Spiritual strategies
- Prayer

Palliative care – what it is and when patients should be referred

Palliative care is defined by the World Health Organization as 'the active total care of patients whose disease is not responsive to curative treatment'.[16] Control of pain, other physical symptoms and psychological, social and spiritual problems is paramount. The goal of palliative care is to achieve the best quality of life for patients and their families.

Palliative care aims to:
- affirm life and regard dying as a normal process
- neither hasten nor postpone death

- provide relief from pain and other distressing symptoms
- integrate the psychological and spiritual aspects of care
- offer a support system to help patients live as actively as possible until death
- offer a support system to help the family cope during the patient's illness and in their own bereavement.

Patients should be referred early in the process of metastatic disease so they are aware of the service and their needs can be addressed as they arise. MT

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Further reading

Overcoming cancer pain. A guide for people with cancer, their families and friends. NSW Cancer Council booklet and DVD. Available online at: http://www.nswcc.org.au/html/patientsfamiliesfriends/livingwithcancer/cancerpain/downloads/overcoming_cancer_pain.pdf (accessed January 2010).

Caresearch website. www.caresearch.com.au

COMPETING INTERESTS: None