Trends in cancer pain management

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Abstract

Background: Pain is a prevalent symptom in cancer patients, affecting up to 50% of patients undergoing active cancer treatment and up to 90% of those with advanced disease. Although adequate relief can be achieved in the majority of cancer patients, pain is often treated inadequately in traditional settings and sometimes even under the management of more specialised units.

In this review the authors use their experience and that of others to review the evaluation and diagnosis of pain syndromes and the principles of management. This is in keeping with increasing recognition by bodies such as the World Health Organisation and other governmental agencies who have recognised the importance of pain management as part of routine cancer care. Conducting a comprehensive assessment, competently providing analgesic drugs, and communicating with the patient and family allow effective management of pain in the cancer patient.

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Introduction

In the cancer population, quality of life may be compromised by poorly controlled symptoms, impairments in physical and psychosocial functioning, and other problems. Pain is a highly prevalent symptom with a serious impact on both the patient and the family. Moreover, it is increasingly accepted that pain is known to influence the immune system which might adversely effect the response to chemotherapy, radiotherapy and possibly provide a greater susceptibility to infection. The World Health Organisation, international and national professional organisations, and other institutions (such as Island Hospice Care) in Zimbabwe and other countries have all acknowledged the importance of pain management as part of routine cancer care.

The prevalence of chronic pain is 30% to 50% in cancer patients undergoing active treatment for a solid tumour and 70% to 90% in those with advanced disease.[1,2] Adequate relief can be achieved in approximately 90% of patients with relatively simple drug therapies.[3] Unfortunately, this outcome is not achieved in most traditional case settings.[2] This situation can be traced to problems at different levels: deficiencies in clinician knowledge, a tendency to give lower priority to symptom control than to disease management, patient under reporting and non-compliance, and system-wide impediments to optimal analgesic therapy.[4,5] The updating of medical information related to pain and symptom control is essential for every clinician involved in the care of cancer patients.

Cancer Pain Evaluation.

Inadequate pain assessment represents a highly prevalent barrier to effective management. The management of cancer pain depends on a comprehensive assessment of phenomenology and pathogenesis, the relationship between the pain and the disease, and the impact of the pain and co-morbid conditions that may influence quality of life. A standard nomenclature and a multidimensional approach are essential components of a comprehensive evaluation.

Pain is defined as "an unpleasant sensory and emotional experience which we primarily associate with tissue damage or describe in terms of such damage, or both."[6] This definition implies that all pain reports reflect a combination of sensory, affective, and cognitive responses. The relationship between pain and tissue injury is neither uniform nor constant. Pain, which is the perception of tissue injury, is inherently subjective. As a result, patient self reporting is the gold standard for assessment.

The description of the pain should characterise its temporal features, intensity, topography, quality, and exacerbating and relieving factors. The information gathered through a detailed history, physical examination,

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and review of laboratory and imaging studies, usually clarifies the relationship between the pain and the disease. This assessment determines the need for further evaluation and influences the selection of specific therapies. In this regard assessments such as pain scales and body maps that assist the patient in providing a more descriptive history are invaluable (Table I).

Table I: Acute pain syndromes.

1. **Due to procedure.**
   - A. Acute pain associated with diagnostic procedures:
     Diagnostic: Lumbar puncture, bone marrow biopsy, paracentesis, etc
     Therapeutic: Pleurodesis, tumor embolisation,nephrostomy insertion, etc
     Analgesic: Spinal opioid hyperalgesia syndrome, pain following strontium-89 therapy
   - B. Acute pain associated with therapies:
     Chemotherapy: intraperitoneal chemotherapy, oropharyngeal mucositis, peripheral neuropathy, etc
     Hormonal therapy: painful gynaecomastia, hormone-induced acute pain flare, etc
     Immunotherapy: arthralgia and myalgia from interferon and interleukin
     Radiation therapy:oropharyngeal mucositis, acute radiation enteritis and proctolitis, brachial plexopathy
2. Due to the Neoplasm or Related Pathology.
   Acute tumour-related pain: vertebral collapse and other pathological fractures, acute obstruction of hollow viscus, haemorrhage into tumour, etc
   Acute pain associated with infection: myalgia and arthralgia associated with sepsis, pain associated with superficial wounds or abscesses.

Therapeutic decision making may be informed by inferences about the pathophysiology of pain. This pathophysiology can be divided into nociceptive, neuropathic, psychogenic, and idiopathic categories.

Nociceptive pain: this term is applied to pains that are presumed to be maintained by ongoing tissue injury. Nociceptive pain is called somatic when the ongoing activation is related to primary afferent nerves in *somatic* tissues (eg, bone, joint, or muscle) and *visceral* when viscera afferents are activated by injury. Pains that are nociceptive, such as bone pain, are the most prevalent type associated with cancer.

Neuropathic pain: is pain that is believed to be sustained by aberrant somatosensory processing in the peripheral or central nervous system. It can be further subdivided into *deafferentation* pains (such as central pain, phantom pain, and post herpetic neuralgia), *peripheral mononeuropathies* and *polyneuropathies*, and the complex regional pain syndromes (reflex sympathetic dystrophy or causalgia). Neuropathic pain syndromes may respond less well to opioid drugs than nociceptive pain syndromes.[7] Other therapies, including the use of specific non-traditional analgesic drugs, may be needed.

Psychogenic pain: this is a generic term that refers to pain syndromes sustained mainly by psychological factors, and is rarely diagnosed in the cancer population. Nonetheless, personality, mood, and co-morbid psychiatric disorders can strongly influence the perception of pain, and psychological assessment is a fundamental goal of the pain evaluation.

Idiopathic pain: is defined as pain that persists in the absence of an identifiable physical or psychological substrate. In medically ill populations, it is often the first sign of occult disease progression.

Pain Syndromes.

Recognition of pain syndromes can complement inferences about pathophysiology and can help in identifying the aetiology of the pain, the need for additional evaluation, and the choice of specific therapies. In this context are examples where an over-riding emphasis on providing analgesia may mask an emergent disaster. For example, it is important to recall that involvement of the long-tracts should not be allowed to mask the failure to diagnose cord compression, where in the latter situation emergent radiology, decompression and radiotherapy may be delayed if the focus has been exclusively on analgesia. Pain syndromes can be acute or chronic.

Acute pain syndromes: are usually caused by common diagnostic or therapeutic interventions (Table I).[8] Acute flares of pain also are highly prevalent among those with chronic pain. One half to two thirds of patients with well-controlled chronic pain experience transitory "breakthrough" pains.[3]

Chronic pain syndromes: result primarily from a direct effect of the neoplasm; others are therapy related or represent disorders unrelated to the disease or its treatment. Clinicians who manage cancer pain must be able to recognise common syndromes.[9]

Tumour-Related Nociceptive Pain Syndromes.

Persistent somatic pain can be due to neoplastic invasion of bone, joint, muscle or connective tissue. Bone pain syndromes are the most prevalent. Bone metastases are often painless, and the factors that distinguish a painful lesion from a painless one are poorly understood. Multifocal bone pain is usually caused by widespread metastases.

The spine is the most common site of bone metastases, and back pain is an extremely common problem in the cancer population. Any neoplastic lesion of the vertebra has the potential to damage spinal cord or nerve roots and produce devastating neurological compromise. Specific pain patterns (eg, "crescendo" pain, pain flare with recumbency, or radicular pain), specific neurological findings (eg, radiculopathy), and specific radiological findings (eg, 50% collapse of a vertebral body) are suspicious of epidural compression. Magnetic resonance imaging (MRI) is the preferred method to evaluate the epidural space. Early diagnosis and treatment of the tumour will prevent neurological deficits. Epidural spinal cord compression is a compelling example of the value of syndrome recognition in cancer pain assessment.

Visceral nociceptive pain syndromes can result from obstruction, infiltration, or compression of visceral structures, including hollow viscus and supporting connective tissues (Table II). Most of these syndromes are overt and easily diagnosed. A few can pose diagnostic challenges, particularly when preceding the diagnosis of the neoplasm.

Table II: Chronic Pain syndromes in patients with cancer.

	Nociceptive Pain Syndromes	Neuropathic Pain Syndromes
1. Tumor-Related:	Bone and joint/soft tissue pain syndromes Paraneoplastic pain syndromes Neoplastic involvement of viscera	Painful peripheral mononeuropathies Painful polyneuropathies Plexopathy Radiculopathy Epidural spinal cord compression
2. Treatment-Related:	Post surgical neuropathic pain Painful gynaecomastia	Painful osteonecrosis pain syndromes Painful lymphoedema Postradiotherapy pain syndromes Postchemotherapy pain syndromes Chronic abdominal pain Radiation-induced chronic pelvic pain

Tumour-Related Neuropathic Pain Syndromes.

Neuropathic pain syndromes (such as brachial plexus syndrome) may be caused by tumour infiltration or compression of nerve, plexus, or roots, or by the remote effects of malignancy on peripheral nerves (Table II). These syndromes are highly variable. The character of the pain can be aching or dysaesthetic (abnormal pain sensations, such as burning), the location can be anywhere in the dermatomal region innervated by the damaged neural structure, and the dysfunction may or may not be motor, sensory, or autonomic.

Treatment-Related Pain Syndromes.

Chronic pain syndromes may be related to antineoplastic therapies. Nociceptive pains related to chemotherapy, radiation therapy, or surgery appear to be uncommon (Table II). Radiation or corticosteroid-based chemotherapy regimens can induce osteonecrosis of bones, and chronic visceral pain can follow intraperitoneal chemotherapy or abdominal radiation therapy. These syndromes can simulate tumour related pains, and the exclusion of recurrence constitutes a major challenge.

Most post treatment pain syndromes are neuropathic. The predisposing factors for chronic neuropathic pain following nerve injury are unknown. Any surgical incision, even minor, can induce a neuropathic pain syndrome. For example, the post mastectomy syndrome, which may be precipitated by injury to the intercostobrachial nerve, causes a tight, burning sensation in the medial aspect of the upper arm, the axilla, and the upper aspect of the anterior chest wall. This pain is not associated with tumour recurrence. In contrast, persistent or recurrent pain after thoracotomy can be treatment related, but it is usually related to the neoplasm.

Radiation induced fibrosis can cause peripheral nerve injury. The resultant chronic neuropathic pain usually appears months to years following treatment. Contrary to nerve injury related to neoplasm, the pain is generally less prominent and slowly progressive. It is often associated with weakness, sensory disturbances, radiation changes of the skin, and lymphoedema.

Painful dysaesthesias, paraesthesias, cramps, and restless legs associated with mild weakness, sensory loss, or autonomic dysfunction may follow treatment with neurotoxic chemotherapy (eg, vincristine, cisplatin, paclitaxel). Although most patients report gradual improvement after therapy is discontinued, some develop a persistent, painful polyneuropathy.

Assessment of Related Constructs.

For most cancer patients, chronic pain represents only one of numerous physical and psychological symptoms associated with the disease and its treatment. Studies have demonstrated that pain, fatigue and psychological distress are the most prevalent symptoms across populations.[1,10,11] A broad symptom assessment is an essential aspect of cancer pain management.

A comprehensive assessment also must address numerous issues subsumed under a broader construct, suffering.[12]

Suffering: is multidimensional and related to overall impairment in quality of life.[13] It has been described as "total pain."[14,15] To adequately assess suffering, multiple domains must be considered, including the physical, psychological, social, spiritual, existential, and others (Table III).[16] A continuous and open dialogue between the clinician and the patient constitutes the basis for this ongoing assessment.

Table III: Dimensions of quality of life.

Major Dimensions	Example of Concerns
•Physical well-being	Pain and other physical symptoms Sleep quality Ability to perform activities of daily living
•Psychological well-being	Mood and psychological symptoms Coping
•Social well-being	Interpersonal contacts Social support
•Spiritual/religious	Fear of dying
Other Dimensions	
•Role functioning	Ability to work Maintaining role in the family
•Relationship with health care providers	Access and trust
•Financial	Cost of care

Palliative care: the therapeutic model known as palliative care is appropriate for addressing the problem of cancer pain as one issue related to suffering. Palliative care is a model of care focused on patients with progressive, incurable illness and their families. It is a therapeutic approach that aims to enhance the quality of life of the patient and family throughout the course of the disease as well as help them face the prospect of death. Near the end of life, palliative care must intensify and ensure that comfort will be a priority, values and decisions will be respected, practical support will be available, and opportunities will exist for growth and resolution.

All clinicians who care for cancer patients should provide palliative care as a part of good medical practice. This care must be provided throughout the course of the disease. Effective treatment for pain is an essential aspect of this care. Referral to specialists in palliative care is appropriate whenever symptom distress cannot be managed, a high level of global suffering exists, or the need for a comprehensive team approach to care is needed.

Treatment of Cancer Pain.

The successful treatment of cancer pain requires the use of therapies that are consistent with the aetiology of pain, the patient's medical status, and the goals of care. Although the principal approach for the management of cancer pain is opioid-based pharmacotherapy, each patient should be considered for a range of potential strategies, including disease-oriented interventions (eg, radiation and chemotherapy) and other analgesic techniques.

We would also propose that many of the principles espoused below apply to pain in general. For while cancer is a good model, it will be clear to the reader that similar issues arise in non-malignant patients with an equivalent disability (such as vertebral collapse from osteoporosis).

Radiation and chemotherapy.

Radiotherapy is an indispensable modality in the palliation of cancer. It is commonly used for pain control. Its role is unquestioned in the management of bone metastases (particularly lung, breast, and prostate), and overall responses are usually in the range of 70% to 80%, independent of tumour histology.[17] Analgesia may also occur when radiation is given for other purposes, such as the treatment of epidural disease,[18] control of tumour ulceration, and management of cerebral metastases, superior *vena cava* obstruction, and bronchial obstruction. The growing acceptance in oncology of pragmatic fractionation schedules with good palliative results is a positive trend.

The palliative role of chemotherapy has been addressed in many trials, but rarely as a primary outcome of interest. The analgesic effects have been poorly studied. Dramatic analgesic responses also can occur when chemotherapy given for disease control results in shrinkage of tumour masses.[19,20] In considering palliative antineoplastic therapy, the anticipated toxicity and the patient's ability to tolerate treatment have major importance. One of the best indicators of the patient's ability to tolerate a chemotherapy is performance status; for example, a performance status of less than 50 on the Karnofsky Performance Status scale usually predicts a poor outcome. Tumour histology, the patient's prior history of therapy, and the natural history of the disease represent other important considerations in the decision process.

Pharmacological Approaches.

Opioid therapy.

Opioid therapy can yield adequate relief in more than three quarters of patients with cancer pain. This justifies its use as a first line therapy for patients with moderate to severe cancer pain. Many patients with mild pain respond adequately to non-opioid drugs, and these should be considered first in such cases. Since the response to opioids is highly individual, sequential trials (so-called opioid rotation) may be needed to identify the drug that yields the most favourable balance between analgesia and side effects. The "analgesic ladder" approach of the World Health Organisation is widely accepted as the basis for treatment guidelines (Table IV).[3,21-23]

Table IV: Guidelines for conventional management of chronic opioid therapy.

Comprehensive Assessment
- Define pain syndrome, functional status, psychosocial disturbance and concurrent diseases,
- Consider previous substance abuse
- Consider efficacy of opioids in the defined pain syndrome and the role of this treatment in a multimodal approach

Drug Selection
- Consider age, major organ failure, pharmacological issues, side effects or toxicity profile, interactions with other drugs, individual differences, available preparations and formulations, cost differences

Route Selection
- Use least invasive route possible
- Consider patient convenience and compliance

Dosing and Dose Treatment
- Consider previous dosing requirements and relative analgesic potencies when initiating therapy
- Start with low dose and increase until adequate analgesia occurs or dose-limiting side effects are encountered
- Consider dosing schedule depending on the anticipated time course of pain
- Consider "rescue medication" for breakthrough pain
- Recognise that tolerance is rarely the driving force for dose escalation; consider disease progression when increasing dose requirements occur

Trial of Alternative Opioids
- Note individual differences in the response to various opioids; consider a trial of another opioid following treatment failure

Treatment of Side Effects
- Consider treatment for constipation, nausea, somnolence, or itch

Monitoring
- Monitor treatment efficacy and pain status over time and consider modification if necessary

Although the oral route is usually preferred for chronic therapy, opioids have been given by many other routes, none of which has merited lasting popularity. However, they are nonetheless important as other routes may be needed for diverse reasons, including dysphagia, impaired gastrointestinal function, and noncompliance with oral agents. Opioid delivery can be accomplished via many other approaches, including the transdermal route (fentanyl), continuous subcutaneous or intravenous infusion, and intraspinal infusion.[24-26] Transdermal medication has become a practical proposition for several drugs. The pharmacokinetics of transdermal therapy are currently the subject of intensive research, and although transdermal opioids are not particularly effective at this time, advances in opioid drugs and in transfer kinetics, especially iontophoesis, make this a viable method in the near future.

Fixed scheduled dosing has replaced "as-needed" dosing in the treatment of continuous or frequently recurring pain. An as-needed "rescue" dose is usually combined with the fixed regimen for the treatment of breakthrough pains. For patients receiving oral therapy, an oral rescue dose is usually sufficient. Novel approaches for the treatment of breakthrough pain, eg, oral transmucosal fentanyl citrate, will soon become available and will hopefully improve the management of problematic breakthrough pain.[27]

The size of the starting dose varies with the severity of the pain, previous exposure to opioid, and the medical condition of the patient. In patients with limited opioid exposure, the starting dose is usually equivalent to 5 to 10 mg of parenteral morphine (20-40mg oral equivalent) every four hours. Based on clinical experience, the size of the rescue dose is typically in the range of 5% to 15% of the total daily dose. With oral dosing, the minimal interval between rescue doses usually should be one and a half to two hours, which allows the maximal effect of the dose to occur before the next one is taken. With intravenous administration, the minimal interval can be as short as 10 to 15 minutes.

Individualisation of the dose is the key principle in opioid therapy. The goal is to achieve a favourable balance between analgesia and side effects through a process of gradual dose adjustment. There is no "correct" or "maximal" dose. In response to poorly controlled pain, the dose should be increased unless precluded by treatment-limiting side effects. The size of each dose increment usually is either the total of the "rescue" doses consumed during the previous 24 hours or 30% to 50% of the current daily dose (sometimes higher in cases of severe pain).

Information about relative potency is needed whenever opioid drugs or routes of administration are changed (Table V).28 These relative potency estimates should be considered as tentative. They are useful as a starting point but may not represent the optimal dose. When switching from one opioid to another, the dose of the new drug is typically reduced by 30% to 50% (and up to 90% when the new drug is methadone).[29]

The maximal efficacy of a specific opioid is determined by the development of intolerable side effects during dose titration. Hence, the management of side effects is fundamental to therapy, potentially improving the balance between analgesia and toxicity and also allowing the use of more effective doses. The most common side effects reflect disturbances in gastrointestinal (constipation, nausea, vomiting) and neuropsychological functioning. Many treatments for the management of opioid side effects have been proposed in the palliative care literature.[30-32]

For patients who do not respond satisfactorily to opioid therapy, other strategies must be considered. These strategies may include other pharmacological approaches or nonpharmacological interventions such as nerve blocks, surgical procedures, or psychological therapies (Table VI).

Table V: Opioid analgesics used for the treatment of chronic pain.

Drug	PO	IM	Half-life(hrs)	Duration (hrs)	Comment
Morphine	20-30**	10	2-3	2-4	Standard for comparison
Morphine CR	20-30	10	2-3	8-12	Various formulations not bioequivalent
Morphine SR	20-30	10	2-3	24	
Oxycodone	20	2-3	3-4		
Oxycodone CR	20	2-3	8-12		
Hydromorphone	7.5	1.5	2-3	2-4	Potency may be greater, ie, IV hydromorphone: IV morphine = 3:1 rather than 6.7:1 during prolonged use
Methadone	20	10	12-190	4-12	Although 1:1 IV ratio with morphine was in single dose study, there is a change with chronic dosing; large dose reduction (75-90%) is needed when switching to methadone
Oxymorphone	10 (rectal)		1	2-3	2-4 Available in rectal and injectable formulations
Levorphanol	4	2	12-15	4-6	
Fentanyl	—	—	7-12	—	Can be administered as a continuous IV or SC infusion; based on clinical experience, 100mg/hr is roughly equianalgesic to IV morphine 4 mg/hr
Fentanyl TTS	—	—	16-24	48-72	Based on clinical experience, 100 mg hr is roughly equianalgesic to IV morphine 4 mg/h; a ratio of oral morphine: transdermal fentanyl of 70:1 may also be used clinically

Studies to determine equianalgesic doses of opioids have used morphine by the IM route. The IM and IV routes are considered to be equivalent and IV is the most common route used in clinical practice.
Although the PO:IM morphine ratio was 6:1 in a single dose study, other observations indicate a ratio of 2-3:1 with repeated administration.
IM = intramuscular.
IV = intravenous.
PO = oral.
SC = subcutaneous.
CR = controlled release.
SR = sustained release.
Dose (mg) Equianalgesic to morphine 10 mg IM*

Table VI: Analgesic and related interventions that may be effective as primary or adjunctive therapies in patients with cancer pain.

Approach	Type	Examples
Anaesthetic techniques		
	Neuraxial infusion	Epidural or intrathecal opioid Continuous intraspinal local anaesthetic Novel intraspinal therapies
	Temporary neural blockade	Somatic nerve blocks Sympathetic nerve blocks
	Neurolytic block	Somatic nerve blocks Visceral afferent blocks Sympathetic nerve blocks Myofascial injections
Surgical techniques		
	Surgical neurolysis	Cordotomy and other lesions in brain or spinal cord Neurolysis of peripheral nerve or root
	Neuraxial infusion	Intraventricular opioids
Neurostimulatory techniques		
	Superficial	Transcutaneous electrical nerve stimulation Acupuncture Counter-irritation
	Invasive	Dorsal column stimulation Deep brain stimulation
Physiatric techniques		
	Orthoses	Spinal or limb bracing
	Therapeutic exercise	Physical therapy
	Modalities	Heat or cold
Psychologic techniques		
	Cognitive therapies	Relaxation Distraction Hypnosis
	Other psychotherapies	Individual supportive Group therapy Family therapy Psychoeducational

Role of non-opioid and adjuvant analgesics.

Non-opiod analgesics: the effective management of cancer pain may require the use of other classes of analgesic drugs. The non-opioid analgesics include paracetamol and the nonsteroidal anti-inflammatory drugs (NSAIDs). Adjuvant analgesics are drugs that have a primary indication other than pain but are analgesic in certain circumstances.

Paracetamol and the NSAIDs produce dose dependent analgesic effects, and they have dose response relationships characterised by a minimal effective dose and a ceiling dose for analgesia. There is large individual variation in the minimal effective dose, toxic dose, and ceiling dose. Given the variability in the minimum effective dose and ceiling dose, titration from a relatively low starting dose should be considered in the medically ill.

NSAIDs appear to have better efficacy in pain related to an inflammatory process and bone pain, and relatively poor efficacy in neuropathic pain. For some patients, they can be very useful and should be considered for co-administration with the opioids. The use of NSAIDs is limited by side effects and concerns about gastro-intestinal and renal toxicity. The utility of these drugs is likely to improve with the advent of cyclooxygenase-2 selective inhibitors, which lack significant gastro-intestinal and renal toxicity.[33]

Adjuvant analgesics: these include numerous drugs in diverse classes (Table VII). In the cancer population, these drugs are usually administered after opioid therapy has been optimised.

Corticosteroids are multipurpose drugs and are used commonly in patients with advanced disease to improve pain, anorexia, nausea, and malaise. It is important to bear in mind that the short term effects such as a rise in blood sugar, electrolyte disturbances and possible hypertension may occur but perhaps less consideration should be placed on the longer term Cushingoid effects. Many other adjuvant analgesics, including antidepressants, anticonvulsants, and oral local anaesthetics, are used for neuropathic pain that does not respond adequately to an opioid.34 Sequential trials are sometimes needed to identify a useful drug.

Table VII: Adjuvant analgesics.

Indication	Examples
Multipurpose drugs	Corticosteroids
Neuropathic pain	Antidepressants:* tricyclic antidepressants "newer" antidepressants Alpha-2 adrenergic agonists:* clonidine tizanidine NMDA receptor antagonists: ketamine dextromethorphan Anticonvulsants: Carbamazepine Gabapentin Oral local anaesthetics: mexiletine tocainide Neuroleptics Miscellaneous: baclofen calcitonin
Drugs used for CRPS or suspected sympathetically maintained pain	Clonidine Prazosin Phenoxybenzamine
Topical agents	Capsaicin Local anaesthetics
Drugs for bone pain	Bisphosphonates Calcitonin Radiopharmaceuticals (e.g. strontium-89 and samarium-153)
Drugs for bowel obstruction	Scopolamine Glycopyrrolate Octreotide

Multipurpose analgesics but used for neuropathic pain.
CRPS = complex regional pain syndrome.

Other Adjuvant analgesics: are used to manage opioid-refractory malignant bone pain. These include bisphosphonates, radiopharmaceutical drugs, and calcitonin. There have been no comparative trials of these adjuvant analgesics for bone pain. With increasing evidence that the bisphosphonates improve overall morbidity associated with bone metastases, the use of these drugs is expanding.[35]

The pain associated with malignant bowel obstruction may be difficult to treat. Anticholinergic drugs, octreotide, and corticosteroids may be useful adjuvant drugs that reduce both pain and vomiting.[36]

Other Analgesic Techniques.

For patients who do not respond adequately to drug therapy, alternative analgesic therapies must be considered. These therapies include a large number of anaesthetic, surgical, neurostimulatory, physiatric, and psychological interventions (Table VI).

Neuraxial drug administration (intraspinal techniques) and neural blockade are the most commonly used anaesthetic techniques. Continuous epidural or subarachnoid infusion of an opioid is now routinely tried in the management of patients with refractory focal or multifocal (nociceptive or neuropathic) cancer pains. The usual indication is pain in the lower half of the body that cannot be managed at opioid doses below those associated with intolerable and unmanageable somnolence or cognitive impairment. The addition of a local anaesthetic or other drug to the opioid may provide significant analgesia when intraspinal opioids alone are insufficient.

Neural blockade with a local anaesthetic may be undertaken for diagnostic, prognostic, or therapeutic purposes. Focal muscle or connective tissue pains associated with discrete trigger points sometimes improve with injection of local anaesthetic into the affected area. Neurolysis using phenol or alcohol is considered when other non-destructive approaches are not possible or have failed, the pain is well localised, and the block will not compromise strength or sphincter function.

Neurosurgical techniques directed against specific peripheral or central nervous system structures can benefit a highly selected group with refractory cancer related pain. Cordotomy is most often used. For example, in cases of chronic pelvic pain and phantom limb pain procedures such as a spinothalamic cordotomy and dorsal entry zone lesions (DREZ) have been used. [37] However, it should be noted that although a success rate of between 80 to 95% is recorded in good centres,[37] complications can arise (such as anaesthesia dolorosa, ataxia and erectile dysfunction). The procedure of bilateral cordotomy is not recommended as it may result in severe autonomic and sphincter dysfunction.

Neurostimulatory techniques can be relatively non invasive (eg, transcutaneous electrical nerve stimulation [TENS] and acupuncture) or invasive (eg, dorsal column stimulation or deep brain stimulation). Support for the use of these interventions for cancer pain is anecdotal. TENS and acupuncture are often tried.

Physiatric therapies, including modalities (eg, medicinal diathermy and cryotherapy) and therapeutic exercises also have analgesic effects. In some cases, orthotics that reduce weight bearing or stabilise a painful limb can be helpful. The supporting literature for these approaches is anecdotal. Positive effects are commonly observed, however, and these approaches can be used to address both functional decline and pain.

Most patients will eventually adapt to emotional and psychological disturbances associated with cancer and will respond to reassurance, support, and adequate information. For others, referral to a mental health professional will be needed. Individual psychotherapy, group therapy, and family therapy are all useful. Psychological interventions can sometimes ameliorate pain or improve pain related coping. Cognitive-behavioural and psycho-educational interventions are supported by extensive clinical experience and are particularly helpful in patients harbouring misconceptions about pain, treatments, and other issues.

Alternative or complementary medicine approaches have a growing role in the search for pain relief, although no controlled studies have been conducted for any of these interventions. Physicians are generally well served by being open to these interventions, discussing the possible risks and benefits, and being supportive should patients choose to pursue an approach that is likely to be safe.

Conclusions

Cancer pain represents one of the multiple facets of a progressive illness that may undermine quality of life and profoundly burden the family. Pain management is essential in a broader perspective of palliative care, which aims to maintain quality of life throughout the course of disease and manage the complex problems that can occur as patients approach the end of life.

Pain management in the medically ill depends on the ability to conduct a comprehensive assessment, competently provide analgesic drugs, and communicate with the patient and family. We believe that this could be performed with greater expertise and expediency through the establishment of more pain clinics (such as exist at Parirenyatwa Hospital Medical School) and the formation of multidisciplinary teams to manage this multifactorial problem.

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