Assessment and Management of Cancer Pain in Older Adults: Strategies for Success

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ABSTRACT
Pain is a significant problem in older adults with cancer as older adults often receive suboptimal pain management. While overmedication can lead to adverse effects, under management of pain can lead to physiological and psychological problems such as functional decline and depression. This manuscript will discuss the assessment and management of pain in older adults, in consideration of the pharmacodynamic changes related to aging and other individual considerations. Current evidence from filtered and unfiltered sources, PubMed, current guidelines.

Unrelieved pain can have a detrimental impact on older adults. A team approach is essential to assess patients at each encounter, consider the social environment in which the patient resides, and employ pharmacologic and nonpharmacologic strategies that are evidence-based and are tailored to the specific cancer pain syndrome.

Key words: Cancer, pain, older adults, elderly, geriatrics, pharmacokinetics, pharmacodynamics

Introduction
Pain is one of the most common symptoms experienced by patients with cancer and can occur at any time during the cancer trajectory. A recent meta-analysis of 122 studies found the prevalence rates of cancer pain 39.3% after curative treatment; 55% during anticancer treatment, and 66.4% in advanced, metastatic, or terminal disease. Since the prevalence of cancer is highest in the older adult population, cancer pain is also a significant issue in this population. This manuscript provides an overview of cancer pain in older adults. The discussion will ensue on the pain experience in older adults, holistic assessment guidelines, and pharmacologic and nonpharmacologic strategies to optimally manage cancer pain in in older adults with cancer.

The Experience of Cancer Pain in Older Adults
It is important for clinicians to understand how older adults construct the pain experience. Understanding their
Assessing Pain in Older Adults

Aging is a heterogeneous process and a personalized assessment of pain is essential for older adults. First, clinicians should recognize pain as a multidimensional experience that encompasses the whole person. “Total pain,” a term deemed by Dame Cicely Saunders, is pain that involves the physical, psychological, social, and spiritual domains of a human being. These assessment domains apply to older adults, with individualized consideration for each patient’s overall functional status, mental processing, and their ability to report and communicate the pain.

**Assessment should begin using a 5-step approach [Table 1].**[14-16] Self-report is the gold-standard for pain assessment, but some patients may not be able to verbally report pain. The subsequent steps should then be employed to determine the possible presence of pain. If any of the measures are positive, health-care professionals should assume that the patient has pain and begin analogesics. For example, if the patient was recently diagnosed with metastatic breast cancer, nonopioids along with opioids should be used.[14,15]

If the patient is nonverbal and unable to communicate the presence of pain, several tools are available for both research and clinical purposes. Some include the Abbey pain scale (Abbey) assessment of discomfort in dementia protocol, checklist of nonverbal pain indicators, the Douoplus-2, the face, legs, activity, cry, and consolability pain assessment tool, noncommunicative patient’s pain assessment instrument, pain assessment checklist for seniors with limited ability to communicate, pain assessment for the dementing elderly and pain assessment in advanced dementia. No one tool is recommended for practice. Clinicians should examine each tool for use and feasibility within their setting.[17]

A patient’s history of pain should also be noted. Most older adults suffer from some chronic pain syndrome.
and should be considered in the total pain assessment. Approximately 25%–76% of older adults living in the community experience chronic pain and 83%–93% of those living in residential facilities. Both cancer pain and the chronic pain should be included determined as the type of pain will provide information for the management plan.

For patients who can communicate, the impact of pain on the patient’s psychological, social, and spiritual well-being should be carefully assessed. For psychological assessment, pain often clusters with other symptoms such as anxiety and depression. These assessments should be routine in any patient with pain. Social assessment includes how the pain impacts the patient’s ability to function and interact with others. Often, pain can lead to isolation and loneliness. Spiritual assessment can include how spiritual beliefs influence suffering or facilitate coping with the pain.

### Assessing the Care Environment

The environment in which the older adult lives should be carefully assessed for factors that can influence the overall management plan. First, older adults can be living in the home, with or without a caregiver, or in long-term care or hospice facility. Home health may or may not be available. Assessment of sight is essential for patients self-managing their care. Forgetfulness and confusion can impact medication adherence. Ensuring that the medication bottles are easy to read and understandable, and making sure an organization system is set-up for success is importance for proper administration and adherence. Pull boxes can be used to assist with tracking and dispensing medications daily. Health-care journals can be used to track pain scores and “as needed” medications taken for breakthrough pain. This allows the clinician to better assess the effectiveness of the employed interventions. In addition, opioids should be locked in a cabinet, and patients and caregivers need to understand the risk of theft that can occur, even with known persons.

### Managing Pain in Older Adults

#### Physiological changes associated with aging

As individuals age, a greater risk exists for drug-related toxicities and drug–drug interactions. First, older adults have a greater risk of polypharmacy issues. The median number of prescriptions has doubled from 2 to 4 in the U.S. and 12.8% of adults aged 65 and older are taking more than five prescriptions per day. This is consistent with other international studies. Overmedicating can lead to an increased risk of adverse events. However, clinicians also need to consider that under medicating older adults, which often occurs, has the risk of inadequately treating a patient’s pain. Second, the therapeutic window becomes narrow with changes in renal, hepatic, and other bodily functions. Age-related changes in the gastrointestinal tract, fat and lean mass, body water volume, and renal and hepatic function lead to reduced absorption, changed drug distribution, and modified metabolism and elimination associated with aging. Specific age-related changes are included in Table 2. Specific age-related changes are included in Table 2.

#### Pharmacologic management

Nonopioids, opioids, and coanalgesics are all employed in the management of older adults with cancer. Agents should be administered in consideration of the physiologic changes in the older adult and the individual patient’s status. For example, not all older adults have renal compromise.

| Pharmacodynamic property | Physiologic change | Consequences | Pharmacologic implications |
|--------------------------|--------------------|--------------|---------------------------|
| Absorption               | Reduced gastric and intestinal motility | Prolonged colon transit times | Decreased and inadequate absorption of drugs |
|                         | Increased pH        | Higher risk of constipation | Difficulty taking oral medications |
|                         | Decreased digestive enzyme activity | Gastrointestinal distress | Higher risk for developing opioid-induced constipation |
|                         | Mucosal atrophy     | Swallowing difficulties | |
even though physiologic changes are occurring. Regardless of the analgesic administered, the principle of “start low” and “go slow” should be employed consistently.[22]

**Nonopioids**

Paracetamol is commonly used to manage musculoskeletal pain and is well-tolerated in older adults. As metabolism involves the liver, paracetamol should be avoided or used with caution in patients with hepatic insufficiency. Patients should also be instructed to not exceed 4 g of paracetamol in 24 h. Cold medicine and over-the-counter labels should be checked carefully as they commonly contain paracetamol and their amounts should be included in the 24 h totals. Nonsteroidal anti-inflammatory drugs should be used with extreme caution in older adults. They are over-the-counter agents commonly used by older adults for self-medication but are dependent on protein binding for transport and distribution. Lower albumin levels in older adults lead to drug accumulation systemically, leading to a higher risk for NSAID toxicities including gastrointestinal disturbances (e.g., dyspepsia, peptic ulceration, and hemorrhage), renal failure, and bleeding.[18,26]

**Opioids**

Opioids are the mainstay of cancer pain management. This includes patients of all ages, including older adults. Several opioid options exist including morphine, oxycodone, hydromorphone, hydrocodone, fentanyl, and methadone.[21] The risk–benefit ratio of each opioid should be carefully weighed, keeping in mind the patient’s physiological status such as renal function and absorption issues. For example, while morphine is the gold standard for opioid comparison, it has two metabolites, morphine-6-glucuronide (M6G) and morphine-3-glucuronide (M3G) which can accumulate in patients with renal compromise. M6G contributes to the pain relief but can accumulate and cause oversedation while M3G can lead to neuroexcitatory effects and counteracts analgesic effects. Clinicians should be especially cautious with methadone. Due to its strong binding to protein, the agent can compete with other protein-bound drugs leading to systemic accumulation and a plethora of side effects such as constipation, sedation, and even death.[22] The commonly employed opioids are included in Table 3.[22,27]

Clinicians should be aware of opioid-related adverse events and recognize that they can be compounded in older adult populations. Constipation is the most common opioid-related adverse effect. Opioids cause three effects on the bowel: lack of peristalsis decreased fluid in the stool and increased anal muscle tone. Constipation is common in older adults, even without the use of opioids; therefore, the addition of opioids commonly compounds the problem. Patients, including older adults, should be prescribed a stool softener and a bowel stimulant prophylactically, to prevent constipation. Assessment should occur ongoing to ensure that bowel movements are regular. Additional laxatives may need to be employed.[23] For refractory constipation, methylnaltrexone is an option that reverses the opioid receptors in the bowel to promote evacuation, usually within an hour.[29]

Other side effects of concern include oversedation and confusion. Risk factors include dementia or confusion, dehydration, and concomitant use of other central nervous system agents. While confusion and/or delirium can occur, a differential diagnosis is essential. The opioid may not be primarily responsible. Other agents such as benzodiazepines should be considered.[30]

**Co-analgesics**

Co-analgesics have three roles as follows: (1) increase the efficacy of other analgesics, (2) provide analgesia for specific pain syndromes, and (3) counteract analgesic adverse effects. The use of co-analgesics can minimize opioid requirements; however, many have adverse properties of their own that should be carefully weighed when prescribed. Some of the most common categories of co-analgesics are discussed below.[22]

![Table 3: Opioid considerations in older adults](image-url)
Anticonvulsants are the co-analgesic of choice for neuopathic pain. Gabapentin and pregabalin are the two agents most commonly employed. The dosing for gabapentin is complex. Doses should be initiated at 100 mg to 300 mg/day and titrated gradually every 3 days to an upper dose of 3,600 mg. Titrations should occur more slowly in older adults due to potential adverse effects such as somnolence, dizziness, fatigue, ataxia, and weight gain. Pregabalin employs more simplistic dosing schedule, 75 mg to 15 mg/day in 2–3 divided doses per day. Sedation may occur, and lower doses should be used in patients with renal compromise.

Antidepressants, specifically tricyclic antidepressants (TCAs) and serotonin-norepinephrine reuptake inhibitors (SNRIs) may also be used in the management of neuropathic pain. TCAs are associated with atroventricular heart block and orthostatic hypotension; therefore, side effects often outweigh benefits in older adults. The two SNRIs, duloxetine and venlafaxine, are usually well-tolerated and may be an option for older adults. Cardiac monitoring is recommended in patients with a history of cardiac disease.22

A variety of other coanalgesics are available to manage pain in older adults. Corticosteroids are helpful in the management of visceral pain, bone-modifying agents, and radionuclides are indicated for pain related to bone metastases. A tailored approach that considers the older adult's pharmacodynamics and specific pain syndrome will lead to improved pain outcomes.22

Nonpharmacologic management

Nonpharmacologic interventions are essential to include in the pain management plan. A recent systematic review of 154 studies found several nonpharmacologic modalities that are recommended for practice or likely to be effective according to the current evidence. A handful of procedures are recommended including celiac plexus block for pain related to pancreatic and abdominal cancers and radiation therapy for bone pain. Psychoeducational interventions are likely to be effective and should be used routinely when caring for older adults. These include education about pain and its management, coaching, relaxation, and interactive groups, which engage patients and caregivers in self-care strategies to manage the pain.31

Summary

Older adults are a disparate population regarding pain management. While overmedicating can lead to a risk of adverse effects, unrelieved pain can have both physiological and psychological consequences. As patients grow older, physiologic changes can alter absorption, distribution, metabolism, and elimination of pharmacologic analgesics. Older adults are also at risk for polypharmacy due to the increase of comorbidities and agents employed to manage their chronic conditions. Each of these factors is individualized. Therefore, a tailored approach is essential to safely and adequately control pain in the older adult population. Finally, a team approach is necessary for success, which includes the patient, the caregiver, and the healthcare team.

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Conflicts of interest

There are no conflicts of interest.

References

1. van den Beuken-van Everdingen MH, Hochstenbach LM, Joosten EA, Tjan-Heijnen VC, Janssen DJ. Update on prevalence of pain in patients with cancer: Systematic review and meta-analysis. J Pain Symptom Manage 2016;51:1070-90000000000.
2. Baker TA, Krok-Schoen JL, O’Connor ML, Brooks AK. The influence of pain severity and interference on satisfaction with pain management among middle-aged and older adults. Pain Res Manag 2016;9561024. DOI: 10.1155/2016/9561024.
3. Dunham M, Ingleton C, Ryan T, Gott M. A narrative literature review of older people’s cancer pain experience. J Clin Nurs 2013;22:2100-13.
4. Dunham M, Allmark P, Collins K. Older people’s experiences of cancer pain: A qualitative study. Nurs Older People 2017;29:28-32.
5. Brant JM, Stringer LH. Cancer Pain. In: Yarbro CH, Wujcik D, Gobel BH, editors. Cancer Nursing: Principles and Practice. 8th ed. Burlington, MA: Jones and Bartlett; 2018. p. 781-816.
6. Desbiens NA, Wu AW, Broste SK, Wenger NS, Connors AF Jr., Lynn J, et al. Pain and satisfaction with pain control in seriously ill hospitalized adults: Findings from the SUPPORT research investigations. For the SUPPORT investigators. Study to understand prognoses and preferences for outcomes and risks of treatment. Crit Care Med 1996;24:1953-61.
7. Fairchild A. Under-treatment of cancer pain. Curr Opin Support Palliat Care 2010;4:11-5.
8. Cataldo JK, Paul S, Cooper B, Skerman H, Alexander K, Aouizerat B, et al. Differences in the symptom experience of older versus younger oncology outpatients: A cross-sectional study. BMC Cancer 2013;13:6.
9. Moye J, June A, Martin LA, Gosian J, Herman LI, Naik AD. Pain is prevalent and persisting in cancer survivors: Differential factors across age groups. J Geriatr Oncol 2014;5:190-6.
10. Soltow D, Given BA, Given CW. Relationship between age and symptoms of pain and fatigue in adults undergoing treatment for cancer. Cancer Nurs 2010;33:296-303.
11. Saunders CM. The Management of Terminal Malignant Disease. London: Edward Arnold; 1978.
12. Gallagher E, Rogers BB, Brant JM. Cancer-related pain assessment: Monitoring the effectiveness of interventions. Clin J Oncol Nurs 2017;21:8-12.
13. Wedding U, Stauder R. Cancer and ageism. Ecancermedicalscience 2014;8:ed39.
14. Herr K. Pain assessment strategies in older patients. J Pain 2011;12:S3-13.
15. Herr K, Coyne PJ, McCaffery M, Manworren R, Merkel S. Pain assessment in the patient unable to self-report: Position statement with clinical practice recommendations. Pain Manag Nurs 2011;12:230-50.
16. Herr K, Bjoro K, Decker S. Tools for assessment of pain in nonverbal older adults with dementia: A state-of-the-science review. J Pain Symptom Manage 2006;31:170-92.
17. Herr K, Coyne PJ, Key T, Manworren R, McCaffery M, Merkel S, et al. Pain assessment in the nonverbal patient: Position statement with clinical practice recommendations. Pain Manag Nurs 2006;7:44-52.
18. Abdullah A, Adams N, Bone M, Elliott AM, Gaffin J, Jones D, et al. Guidance on the management of pain in older people. Age Ageing 2013;42 Suppl 1:i1-57.
19. Lichtner V, Dowding D, Esterhuizen P, Closs SJ, Long AF, Corbett A, et al. Pain assessment for people with dementia: A systematic review of systematic reviews of pain assessment tools. BMC Geriatr 2014;14:138.
20. Brant JM. Pain. In: Yarbor DW, Holmes B, editors. Cancer Symptom Management. Burlington, MA: Jones & Bartlett; 2014. p. 69-92.
21. Brant JM. Strategies to manage pain in palliative care. In: O'Connor M, Lee S, Aranda S, editors. Palliative Care Nursing: A Guide to Practice. 3rd ed. Victoria, Australia: Ausmed; 2012. p. 93-113.
22. American Pain Society. Principles of Analgesic use in the Treatment of Acute Pain and Cancer Pain. 7th ed. Glenview, IL: APS Press; 2016.
23. Charlesworth CJ, Smit E, Lee DS, Alramadhan F, Odden MC, Polypharmacy among adults aged 65 years and older in the united states: 1988-2010. J Gerontol A Biol Sci Med Sci 2015;70:989-95.
24. Lim LM, McStea M, Chung WW, Nor Azmi N, Abdul Aziz SA, Alwi S, et al. Prevalence, risk factors and health outcomes associated with polypharmacy among urban community-dwelling older adults in multi-ethnic malaysia. PLoS One 2017;12:e0173466.
25. American Geriatrics Society. Pharmacological management of persistent pain in older persons. Pain Med 2009;10:1062-83.
26. Brant JM, Keller L, McLeod K, Yeh C, Eaton LH. Chronic and refractory pain: A Systematic review of pharmacologic management in oncology. Clin J Oncol Nurs 2017;21:31-53.
27. Brant JM. Practical approaches to pharmacologic management of pain in older adults with cancer. Oncol Nurs Forum 2010;37 Suppl 1:17-26.
28. Gervais C, Ducrotte P, Piche T, Di Palma M, Jovenin N, Scotte F. Constipation and cancer: Current strategies. Bull Cancer 2016;103:794-804.
29. Mehta N, O'Connell K, Giambrone GP, Baqai A, Diwan S. Efficacy of methylnaltrexone for the treatment of opioid-induced constipation: A meta-analysis and systematic review. Postgrad Med 2016;128:282-9.
30. Guerriero F. Guidance on opioids prescribing for the management of persistent non-cancer pain in older adults. World J Clin Cases 2017;5:73-81.
31. Eaton LH, Brant JM, McLeod K, Yeh C. Nonpharmacologic pain interventions: A Review of evidence-based practices for reducing chronic cancer pain. Clin J Oncol Nurs 2017;21:54-70.