

Aspects of pain management in the older person

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ABSTRACT Pain is a common symptom in an older person and is often under-managed. In this article, we discuss the comprehensive assessment of pain and propose a multidisciplinary approach. The principles of pharmacological treatment are highlighted, while not forgetting the need to consider interventional procedures in appropriate conditions where pain relief can be achieved for a period of time. When prescribing, consideration should be given to the underlying co-morbidities, functional status and psychosocial situation of the individual, and the patient should be monitored for any improvement of the pain and for the development of any adverse effects. The pharmacological approach follows that of the guidelines of the WHO analgesic ladder. We will also discuss in greater detail the approach to neuropathic pain and pain management in older persons with cognitive impairment. For neuropathic pain, agents that may be useful include antidepressants, anticonvulsants, opioid analgesics and N-methyl-D-aspartate antagonists. Accurate assessment of pain in the older person with cognitive impairment poses a significant barrier to pain management. The principles of management in this group of individuals will be discussed and the variety of pain behaviours in an older person will be highlighted.

KEYWORDS Aged, dementia, neuropathic pain, pain, pain measurement

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INTRODUCTION

Pain is a common symptom in the older person. It occurs in 50% of community-dwelling older people and in up to 80% of those in an institution. Despite such a high prevalence, it is frequently neglected. Physicians have been trained to adopt a 'disease' mode of treatment rather than a 'symptom' mode. Priorities are allocated to management of the 'disease' state rather than treating symptoms. As such, under-management of pain is common, particularly in those with cognitive impairment.

Psychophysical studies support the notion that older people are more vulnerable to pain than younger people. Older people have been shown to have a higher pain threshold, a lower pain tolerance, to be more prone to central sensitisation and to have a less effective endogenous pain modulating system. This means that pain is perceived by the older person only when there is significant damage. Pain also rapidly becomes intolerable with increasing nociceptive stimuli. There is a possibility that an injury will result in more widespread pain in an older person than in a younger person due to central sensitisation.

Furthermore, the common profile of an older person is one of multiple co-morbidities, reduced organ reserve and functional impairment. Co-morbidities, such as dementia, may hamper the assessment of pain. Frequently, there is a vicious circle between pain and geriatric syndromes, functional impairment and co-morbidities. Optimal management of pain in the older person therefore also requires a comprehensive assessment of

all the aspects of disability and multidisciplinary intervention. One should also be mindful of the potential effects of analgesics on co-morbidities and functional status. Further addition of analgesics may heighten the possibility of adverse drug interactions in the presence of polypharmacy.

Older people are thus very vulnerable to the effects of persistent pain. In this overview, we give an outline of the philosophy of assessment and management of pain in the older person, a description of pain in those with cognitive impairment and the principles of managing neuropathic pain.

ASSESSMENT

The first step in the evaluation of an older person with pain is to rule out potentially treatable sinister causes, such as infections, fractures and tumours. 'Red flags' should prompt investigation for a possible underlying cause. Examples of red flags would be when pain is associated with:

- Weight loss, persistent fever or any feature of chronic ill health
- Chronic infections or underlying malignancies
- Sinister characteristics such as an extremely rapid onset, a progressively worsening course, being poorly relieved by analgesia or increasing at rest or when the patient is supine
- Neurological deficits that are progressive or typically associated with compressive neuropathies

The next step is to assess the patient for pain conditions where intervention may give rise to pain relief for a period of time. Common examples would include joint replacements, spinal epidurals in patients with spinal stenosis, radiofrequency denervation of the facet joints in cervical facet arthropathy and, occasionally, lumbar facet arthropathy and vertebroplasty in patients with vertebral osteoporotic compression fractures. Thereafter assessment of all of the following areas is required:

1. Medical An attempt should be made to unravel the underlying pathology and mechanism of the pain. Co-existing medical conditions and medicines should be noted as they can affect the expression of pain and the choice of analgesia. For example, an individual with benign prostatic hyperplasia runs the risk of developing acute urinary retention with tricyclic antidepressants (TCAs) that were started for neuropathic pain.

2. Functional What is the effect of the pain on functional status? What would be a realistic functional goal for the patient, considering the underlying pathology? Would the prescribed medication worsen the functional status? Many medications have prominent central effects; for example, gabapentin or opioids, which may cause unsteady gait and predispose to falls.

3. Social Are there strained relationships between the patient and family members and/or caregivers? Are these a result of the pain or are they causing the pain to perpetuate? Overly protective caregivers may restrict the mobility of the individual, resulting in further deconditioning.

4. Cognitive What beliefs does the patient hold about his or her pain, and how do these interact with the pain? For example, the older person who considers pain as a warning of potential injury may restrict their movement for fear that further movement will result in irreversible damage.

5. Affective Is there associated depression, anxiety or behavioural change?

PRINCIPLES OF PAIN MANAGEMENT

Identify the goal of management

Following the initial assessment, the goals of management should be identified. Where possible, the underlying pathology should be treated. More often than not, it may not be possible to eliminate the pain completely. A mutually agreed achievable functional goal should be set following multidisciplinary assessment and discussion with the patient. Further treatment plans and titration of medications should be geared towards achieving this goal. In addition, caregivers should also have a sense of the aims of management and should be taught how to

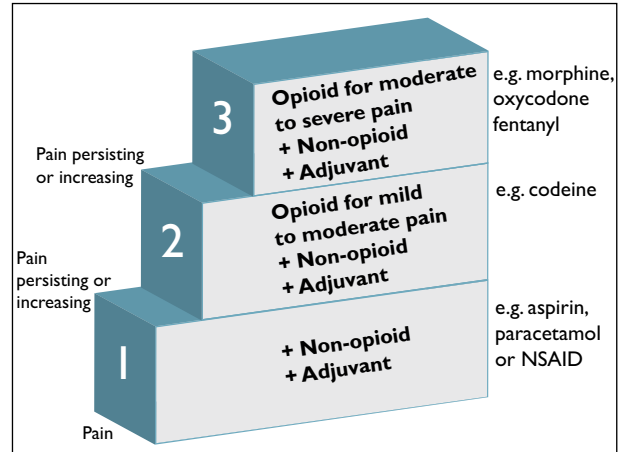


FIGURE 1 World Health Organisation analgesic ladder.

help the patient to achieve their aims. Practitioners need to be mindful of the benefits and adverse effects of the medication used.

Pharmacological aspects

The pharmacological principles relevant to management of older people apply. Many medications used for pain control are centrally acting and often give rise to increased somnolence, ataxia and giddiness. This may worsen the functional status of the patient, which may already be impaired as a result of the pain. Paradoxical pain has been described where the increasing use of opioids results in increased pain. This is a consequence of opioids affecting the cognitive function of the individual, thereby causing the individual to lose certain coping strategies.

Escalation of medication should be performed following the World Health Organisation analgesic ladder (see Figure 1), except in the case of neuropathic pain, which is dealt with later in this overview. Paracetamol remains the initial drug of choice in most instances. Non-steroidal anti-inflammatory drugs are generally used sparingly in the frail older person, due to the risk of adverse effects. When administered, they are best used for a short period of time, for example two weeks. Opioids may have a better risk–benefit profile when analgesia has to be prescribed over a period of time.

Generally, long-acting medications promote better compliance. The fentanyl patch is an example of a very long-acting opioid formulation and is useful for managing chronic pain that is opioid-responsive. These patches are not suitable, however, for initial titration of the dose of opioids required as there is a risk of overdose. Our practice is not to use patches when the patient is prone to frequent acute deterioration in their condition. Acute deterioration tends to affect the pharmacokinetics of opioids and put the patient at risk of adverse events from opioids during those times.

Short-acting rapid-onset analgesia, such as oxycodone or morphine syrup, can be used for breakthrough pain or for a predictable time-limited pain. They can be given an hour before potentially painful procedures, such as wound dressings. The downside of such treatment is that because of the high peak effects, the patient is at higher risk of side effects, such as vomiting. This, coupled with the individual variability in the effect of drugs, suggests that trials of various medications can be given to the patient for a specific procedure using an N-of-1 design. The drug with the most favourable risk–benefit ratio can then be adopted.

Certain medications may not have a direct analgesic effect, but may have an indirect effect on the painful condition. In osteoporosis, intranasal calcitonin is useful for acute vertebral fracture pain, for up to a month post-fracture. It is, however, not useful for chronic back pain. Bisphosphonates can be a useful adjuvant for chronic back pain related to osteoporosis. Glucosamine sulphate has a modest effect when used for osteoarthritis. Intra-articular hydrocortisone has been shown to provide short-term pain relief of up to four weeks.

Multidisciplinary management of pain

The multidisciplinary management of chronic pain in older people follows a cognitive-behavioural paradigm. Maladaptive cognitions and behaviours are managed by a team comprising a physician, an anaesthetist, a physiotherapist, a clinical psychologist and an occupational therapist.

Patients are taught goal-setting and problem-solving strategies. They are taught to participate in graded activities and to use relaxation skills. Maladaptive cognitions are identified and managed by means of cognitive psychotherapy. In some centres, carers are also involved in learning coping strategies.

Interventional modalities

Interventional modalities should be considered early when there is a role for them. The aim would be to minimise the period of immobility due to pain. However, this must be balanced against the patient's potential for rehabilitation. Frequently these invasive measures provide short-term pain relief. The more common scenarios are:

Acute back pain from osteoporotic vertebral fractures. Vertebroplasty has been shown to be effective, with substantial pain relief documented in 60–100% of patients. However, there is a short-term complication rate of 0.5–54%. Spontaneous improvement in pain also tends to happen in the first two weeks. Our current strategy is to continue with conservative measures for one week. If the patient is unable to regain reasonable function by then, we will usually refer the patient for vertebroplasty.

Positional radiculopathy or spinal claudication secondary to spinal stenosis. Epidural corticosteroids may reduce pain. The duration of pain relief varies from patient to patient and is less than two months for about two-thirds of patients. Repeated spinal epidurals have been used to delay surgery or when surgery is not possible.

Back pain with or without radicular pain from lumbar spondylosis or lumbar facet joint arthropathy. Radiofrequency lesioning of the medial branch nerve of the facet joint has been shown to relieve back pain in a quarter of patients. Epidural nerve root sleeve injections have also been shown to be useful for radicular pain, with an odds ratio of 1.87 (95% CI = 1.31–2.68) for pain relief lasting up to a year.

Hip pain or knee pain secondary to osteoarthritis. Joint replacements should be considered when conservative treatments for pain have been exhausted. Pain relief is usually substantial. Patients with non-painful joint dysfunction tend not to benefit as much.

There are many other modalities available, and patients with intractable pain should either be referred to a pain physician or to an anaesthetist with an interest in pain management.

NEUROPATHIC PAIN

Neuropathic pain is caused by a lesion of the nervous system. The impact of this form of pain can be dramatic and vivid, and control can be difficult.

Pathophysiology and causes

The pathogenesis of neuropathic pain comprises both peripheral and central mechanisms. Increased sodium and voltage-gated calcium channels in regenerating nerves result in uncontrolled neuronal firing. Sustained painful stimuli result in the heightened sensitivity of the spinal neurones, a process known as spinal sensitisation.

Causes of neuropathic pain include a variety of conditions affecting the brain, spinal cord and peripheral nerves. Some examples are cervical or lumbar radiculopathy, diabetic neuropathy, cancer-related neuropathic pain, post-herpetic neuralgia, central post-stroke pain, spinal cord injury, trigeminal neuralgia and complex regional pain syndromes.

History and physical examination

The diagnosis is based on demonstrating a neurological deficit and pain in the area of sensory impairment. However, the pain may not involve the entire territory of sensory impairment. It may be spontaneous or stimulus-evoked and is frequently described as burning, shooting or lancinating.

Examination is aimed at eliciting specific signs in the area of pain, as follows:

Allodynia: when pain is induced by a stimulus that does not usually cause pain. Can be elicited by light touch over the area of pain.

Hyperalgesia: when there is an increased response to a stimulus that is normally painful. Can be elicited by running the sharp end of an open paper clip in the area where the pain is located.

Hyperpathia: an abnormally painful reaction to a pain stimulus. Can be elicited by giving a repetitive stimulus with a toothpick in the area where the pain is located. The pain will be reported as increasing, and there may be an 'after-sensation', where pain is still experienced after the stimulus is stopped.

Alterations in skin temperature, colour, sweating or hair growth may indicate the presence of complex regional pain syndrome.

Pharmacological approach

The groups of medications suitable for treatment of neuropathic pain include antidepressants, anticonvulsants, opioid analgesics and N-methyl-D-aspartate (NMDA) antagonists. Other medications include topical agents.

The analgesic properties of TCAs are attributed to blockade of noradrenaline and serotonin reuptake, antagonism of the NMDA receptor and sodium channel blockade. Choices of TCAs include amitriptyline and nortriptyline, with a preference for nortriptyline because it is better tolerated. Other useful antidepressants include venlafaxine and duloxetine. However, these appear to have a lower efficacy compared with TCAs.

Among the anticonvulsants, gabapentin has repeatedly been shown to have analgesic efficacy, with improvements in mood and sleep shown by several randomised controlled trials. There has also been an increase in evidence for the efficacy of pregabalin. Other anticonvulsants, with less evidence of efficacy, include valproate, lamotrigine and topiramate.

There has been much controversy with regard to the use of opioids for neuropathic pain. Nevertheless, the use of opioids should still be considered, particularly if the pain is poorly controlled despite the use of TCAs and anticonvulsants. Currently, there is lack of evidence for long-term use of opioids for neuropathic pain. Tramadol is a weak opioid and a mixed serotonin-noradrenaline reuptake inhibitor (SNRI).

N-methyl-D-aspartate antagonists, for example ketamine, may be useful in reducing the NMDA activity present in central sensitisation. Unfortunately, many elderly patients are unable to tolerate the psychomimetic side effects of these agents.

TABLE 1 Pain behaviours in older people with cognitive impairment

Facial expressions

- Slight frown; sad, frightened face
- Grimacing, wrinkled forehead; closed or tightened eyes
- Any distorted expression
- Rapid blinking

Verbalisations, vocalisations

- Sighing, moaning, groaning
- Grunting, chanting, calling out
- Noisy breathing
- Asking for help
- Verbally abusive

Body movements

- Rigid, tense body posture; guarding
- Fidgeting
- Increased pacing, rocking
- Restricted movement
- Gait or mobility changes

Changes in interpersonal interactions

- Aggressive, combative, resisting care
- Decreased social interactions
- Socially inappropriate, disruptive
- Withdrawn

Changes in activity patterns or routine

- Refusing food; appetite change
- Increase in rest periods
- Sleep-rest pattern changes
- Sudden cessation of common routines
- Increased wandering

Mental status changes

- Crying or tears
- Increased confusion
- Irritability or distress

Source: AGS Panel on Persistent Pain in Older Persons. The management of persistent pain in older persons. *J Am Geriatr Soc* 2002; 50(6 Suppl):S205–24.

Topical agents are attractive because of the low potential for systemic side effects, but their efficacy is doubtful and they usually need to be combined with oral agents.

Approach to neuropathic pain

The treatment of neuropathic pain should start off with agents that have the lowest risk for the patient in question. Simple analgesics like paracetamol may be useful because there may be concomitant nociceptive pain.

Suitable choices of first-line monotherapy include gabapentin (or pregabalin) or a TCA. If monotherapy is found to be ineffective or poorly tolerated, then a switch to the alternative first-line drug can be made. However, if there is a partial response, a second first-line drug or an SNRI may be added. If, despite switching or adding

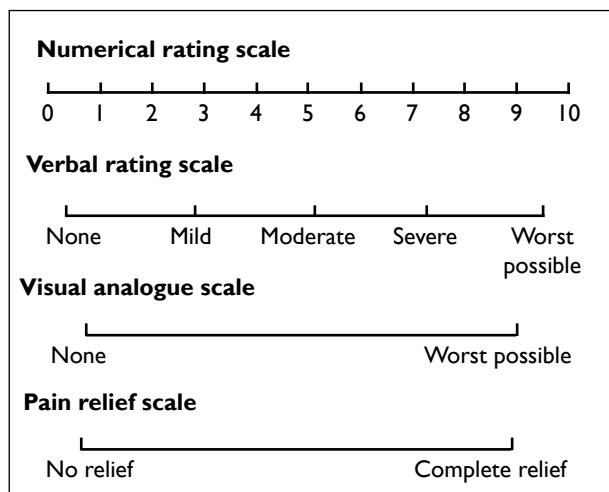


FIGURE 2 Examples of commonly used pain intensity scales.

drugs, there is still no response or only a partial response, then adding or switching to tramadol or opioid analgesics should be considered.

Referral to clinics that are able to perform nerve blocks should also be considered, if warranted. This may allow early rehabilitation of the individual.

PAIN IN THE OLDER PERSON WITH COGNITIVE IMPAIRMENT

Pain in the older person with cognitive impairment is frequently under-treated and under-recognised. The frequency and intensity of pain in people with cognitive impairment has not been shown to be less than for those with no impairment. The difficulty is in the assessment of that pain.

Assessment of pain

Much effort has been expended in developing tools that are reliable, valid and do not require much effort in implementation. Even without such tools, healthcare workers should be familiar with the types of behaviour that are associated with pain (Table 1).

The pain scales frequently used in research settings include pain severity reports by patients themselves, with quantitative tools, such as numerical rating scales or verbal descriptor scales, and staff-administered tools based on observation of behavioural indicators, such as the 'checklist of non-verbal pain indicators'. Reports by patients themselves are considered the gold standard for evaluating pain. The severity of cognitive impairment follows a continuum and a different pain scale will be suitable at different stages. Self-assessment quantitative tools may be used by the older person with mild cognitive impairment (Figures 2 and 3), but for those with severe cognitive impairment and loss of language abilities, observation-based behavioural tools should be used. However, patients with the same degree of severe

20	
19	Extremely intense
18	
17	Very intense
16	Intense
15	Strong
14	Slightly intense
13	
12	Barely strong
11	Moderate
10	
9	
8	Mild
7	Very mild
6	
5	Weak
4	Very weak
3	
2	
1	Faint
0	No pain sensation

FIGURE 3 Gracely Box Scale for measuring pain intensity.

cognitive impairment may manifest different pain behaviours. One patient may be withdrawn and apathetic, while another may be aggressive and agitated. Ideally, the baseline behavioural characteristics of the individual should be known, so that any deviation from this baseline will prompt a search for possible painful situations. Thus the caregiver most familiar with the individual should be asked about possible deviation from usual behaviours.

Approach to the management of pain in the older person with cognitive impairment

If the individual exhibits pain behaviour during movement, consider analgesics or alter the pain-inducing movement. However, if pain behaviours occur when at rest, the patient should first be assessed for possible unmet needs; for example, thirst, hunger and any possible causative pathology (e.g. faecal impaction and infection). Only after ruling out these possibilities should a trial of analgesics be considered with observation for improvement. If there is improvement with analgesics, it can be assumed that the behaviour is caused by pain and analgesics can be continued.

The trial should preferably be of medications that are not sedating, such as paracetamol or non-steroidal anti-inflammatory drugs. Otherwise, a low dose of medications that are potentially sedating can be used, such as opioids or tramadol, usually at half the dose that would be used in a typical older person. The dose should be increased slowly. If the pain behaviour improves but the patient is

generally sedated, it may not be possible to conclude that the behaviour was due to pain. Patients with cognitive impairment are also more prone to the side effects of drugs with anticholinergic and sedating effects. Such drugs may precipitate delirium and should be used carefully in treatment trials.

CONCLUSION

Pain is common in older people. It frequently requires the attention of a multidisciplinary team. Where possible the cause of the pain should be addressed. When this is not possible, the strategy for pain management is one of teaching patients how to cope with their pain. Meticulous assessment and re-assessment is needed when we manage pain in the cognitively impaired.

KEY POINTS

- Management of pain in the older person requires assessment of several aspects: medical, functional, social, cognitive and affective.
- Pharmacological management of pain follows the principles of the WHO analgesic ladder. For the older person, there must be vigilance in identifying potential side effects.
- Consider interventional procedures for the patient in cases where the pain is due to facet joint arthropathy, vertebral fractures or lumbar spinal stenosis.
- Medications suitable for the treatment of neuropathic pain include certain antidepressants, anticonvulsants, N-methyl-D-aspartate antagonists, opioid analgesics and topical agents. You may start with a first-line medication such as an antidepressant or anticonvulsants. Consider switching to another group if intolerable side effects develop or if there is a poor response. An additional first- or second-line agent may be added for poor response.
- Self-administered quantitative tools for pain assessment can be used for individuals with mild cognitive impairment.
- For those with severe cognitive impairment and loss of language abilities, common pain behaviours should be recognised and addressed. If the behaviour persists, a trial of analgesics should be given.

FURTHER READING

- AGS Panel on Persistent Pain in Older Persons. The management of persistent pain in older persons. *J Am Geriatr Soc* 2002; 50(6 Suppl):S205–24.
- Gilron I, Watson CPN, Cahill CM et al. Neuropathic pain: a practical guide for the clinician. *CMAJ* 2006; 175(3):265–75.
- 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(2):170–92.
- Herr K, Decker S. Assessment of pain in older adults with severe cognitive impairment. *Annals Long-term Care* 2004; 12(4):46–52.
- Leong IYO, Helme RD. Considerations in the assessment and management of older people with chronic pain. *Ann Acad Med Singapore* 2003; 32:771–7.
- Turk DC, Melzack R, editors. *Handbook of pain assessment*. 2nd ed. New York: The Guilford Press; 2001.
- Zwakhalen SMG, Hamers JPH, Abu-Saad HH et al. Pain in elderly people with severe dementia: a systematic review of behavioural pain assessment tools. *BMC Geriatrics* 2006; 6:3.

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