

Prescribing strategies to achieve effective management of pain in older adults

Pain is a common complaint among older people, so this group forms a large proportion of the recipients of medication. However, physiological differences in the elderly require a flexible pain treatment strategy, as **Dr Pat Schofield** explains

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The proportion of the population over the age of 65 will be at an all-time high by 2050, rising from 7.4 per cent to 16.4 per cent, and the over-85 age group is projected to more than triple.¹ Pain is a common problem for older people; chronic persistent pain affects at least 50 per cent of community-dwelling older adults.²

Pain problems seen in older adults include musculoskeletal syndromes such as osteoarthritis, spinal cord stenosis and fibromyalgia. Neuropathic pain syndromes are also seen. Thirty per cent of men and 53 per cent of women over the age of 55 experience peripheral joint pain.³ Potentially painful conditions include falls, leg ulcers, degenerative joints and cancer, and despite many of these conditions being well known and visible, the management of pain in this group has been shown to be poor.⁴

Pain in older adults tends to be constant and can be moderate to severe in intensity. Furthermore, it is more likely that pain will persist for many years. However, there is a considerable range of options to relieve pain, and there is no reason why any patient should suffer needless pain, regardless of age.

While there is a growing body of literature proposing improvements in the management of pain in the older adult, there is evidence that this has not been translated into practice. Potential management strategies may assist nurses in prescribing the appropriate treatment for pain in older people.

Current treatment strategies

When an older adult complains of mild to moderate pain, many healthcare providers are content to do nothing.⁵ The alternative is a pharmacological approach, but caution is advised because there is a high incidence of sensitivity to medications; for example NSAIDs are associated with GI bleeding. In addition, the use of opioid analgesics can be controversial. However, while older people can be more sensitive to drugs,⁶ this should not preclude them from taking opioids while under the necessary supervision.

With some minor exceptions, drugs tend to produce greater and more prolonged effects with increasing age of the recipient. This is mostly because of the changes in the physiological responsiveness of the older human body.⁷ Older people undergo distinct changes in their physiology entirely because of age and not pathological processes.

Age-related changes apply specifically to body composition, water, muscle and fat volumes. These change naturally with age, as do the cardiovascular, hepatic, renal and integumentary systems. At a microscopic level there is evidence to suggest that sensory neurones decrease in number and sensitivity. These changes slow reflexes, reduce muscle strength and alter the delicate homeostatic mechanisms that maintain the internal environment of the body at optimal levels.

In healthy people these changes do not pose a major problem to the individual but in the presence of disease and ill health, when pharmacological intervention is required, they do need to be considered when prescribing, for example route of administration, dose and time interval.⁸

The American Geriatrics Society's guidance for the management of persistent pain suggests using paracetamol and COX-2 inhibitors. However, this guidance was published before the high-profile withdrawal of COX-2 inhibitors such as rofecoxib



A number of drug treatments, including NSAIDs and some opioids, should be used with caution in older adults because of adverse effects

and valdecoxib after concerns about cardiovascular safety. A European Medicines Agency statement acknowledged that the increased cardiovascular risk contraindicated the use of COX-2 inhibitors in patients with heart disease or stroke.⁷

Paracetamol is recommended as the first-choice oral analgesic due to its efficacy and safety. NSAIDs at the lowest effective dose can be added or substituted in patients who do not respond adequately to paracetamol. In patients with an increased risk of GI problems, either a COX-2 inhibitor or an NSAID with a gastro-protective agent should be used. Opioid analgesics, with or without paracetamol, can be useful when NSAIDs or COX-2 inhibitors are ineffective, contraindicated or poorly tolerated.⁸

Mild pain

Paracetamol

Paracetamol is readily available OTC and in many preparations, such as those for colds and flu. It is the preferred analgesic for older adults with musculoskeletal problems and can also be used for some mild forms of neuropathic pain. No reduction in dose is necessary for older adults, although care should be taken not to exceed the 4g maximum limit in 24 hours (eight 500mg tablets).⁹ Liver damage may be more likely when there is fasting, dehydration, poor nutrition or high alcohol consumption. Paracetamol is contraindicated in those who abuse alcohol. See current *MIMS for Nurses* or formulary for a full list of contraindications.

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NSAIDs

Older people are at greater risk of adverse reactions to NSAIDs than to other types of pain medication. Complications, particularly among older adults, include GI toxicity and bleeding, renal function impairment, cognitive dysfunction, hyponatraemia and hepatic function impairment.

NSAIDs should be used cautiously with patients who have a history of peptic ulcer disease. These patients should be monitored closely for GI complications. Taking NSAIDs with an anti-acid regimen is helpful in avoiding these complications. Ranitidine and misoprostol can be used prophylactically to avoid GI complications. NSAIDs with short half-lives, such as ibuprofen and diclofenac, appear to have fewer side-effects.

Selective and non-selective COX-2 inhibitors cause water and sodium retention, increase blood pressure and peripheral oedema and reduce glomerular filtration rate. Therefore caution should be used when prescribing in older people with cardiac failure, hypertension or renal impairment.

Many patients taking NSAIDs may have other risk factors for GI haemorrhage, such as chronic alcoholic disease, smoking, vitamin C deficiency, or use of SSRIs in those aged over 80. All patients should take the lowest effective dose of COX-2 selective inhibitors or other NSAIDs for the shortest time necessary to control symptoms.¹⁰

Despite concerns about the side-effects and adverse reactions associated with NSAIDs, they are highly effective in most cases for reducing mild to moderate pain. Studies have found that NSAIDs alone were as effective as single or multiple doses of weak opioids alone or in combination with non-opioid analgesics. Adverse effect incidence and patient drop-out rates were the same for multiple doses of NSAIDs or weak opioids in combination with non-opioid analgesics. Conversely, there is little evidence that NSAIDs are better than paracetamol in relieving osteoarthritis pain.¹¹

Moderate pain

Codeine is often used for short-lasting, predictable incident pain and can be used alone or in a range of formulations combined with aspirin or paracetamol. Some individuals have a congenital absence of the enzyme required to transform codeine into morphine (methylnorphine), which means that pain relief is not achieved. This defect is present in approximately 6–10 per cent of the Caucasian population and less than 6 per cent in the Mexican-American, African-American and Asian-American populations.¹² The conversion process can also be inhibited by some common medications (cimetidine, haloperidol, amitriptyline and many SSRIs, such as fluoxetine). A similar genetic defect can also affect the efficacy of tramadol.¹³

Codeine can cause constipation, confusion and nausea. It has been suggested that it is considerably less effective alone than when combined with paracetamol, for example 600/650mg paracetamol with 60mg of codeine.¹⁴

BOX 1: KEY POINTS

- Pain is a common problem for older people.
- Pain in older adults tends to be persistent and moderate to severe in intensity.
- Drugs tend (with some minor exceptions) to produce greater and more prolonged effects with increasing age.
- Older adults will respond better to treatment if they are given the opportunity to make an informed choice.
- Drugs should be labelled clearly and the rationale and timings clearly explained.
- Older adults should have a drug review at least annually – more often if taking more than four different drugs.
- Nurses should try to not be influenced by the misconceptions that exist around pain management in older people.

Severe pain

Opioids are being increasingly used for the treatment of chronic pain. The general rule for prescribing opioids for older people is to 'start low and go slow'. Nevertheless, there are a number of side-effects associated with opioid use that should be anticipated and dealt with to prevent patients from stopping treatment. For example, constipation and nausea are common and should be prevented by using antiemetics and a good laxative regimen with a faecal softener where necessary. Drowsiness is common in the first few days of prescription and patients should be warned of this.

Several opioids should be avoided or used with caution with older adults. For example, pethidine should not be used because its metabolite norpethidine can cause excitement, agitation, twitching and tremors. Fentanyl patches are not appropriate for opioid-naïve patients. Methadone accumulation is more common in older adults and results in an increase in half-life from six hours to up to two to three days.

Tramadol is a centrally acting analgesic with some action on opioid receptors. Approximately one third of patients cannot tolerate tramadol, experiencing symptoms such as nausea, vomiting, sweating, dizziness, tremors and headaches. Serious side-effects include delirium, hallucinations, serotonin syndrome and poor drug metabolism caused by a genetic defect. Opioids to consider for older people include morphine, buprenorphine, oxycodone and oxycodone/naloxone combination.

In older adults, opioids have an increased half-life and possibly a greater analgesic effect than in younger patients. It should be remembered that in older patients, opioids might cause dose-related drowsiness, cognitive impairment and ventilatory depression. Until tolerance to these adverse effects develops (usually within a few days), patients should not drive and should take precautions against falls or other accidents. Physical function often improves once pain relief is adequate and tolerance to adverse effects has developed.¹⁵

Adjuvant analgesics

The management of neuropathic pain is now commonly treated with anticonvulsant and antiepileptic drugs. For treatment strategies using anticonvulsant drugs, carbamazepine is the drug of choice for trigeminal neuralgia; gabapentin and pregabalin is used for diabetic neuropathy and postherpetic neuralgia, and sodium valproate is used for neuropathic pain. Lacosamine is indicated as an adjunct in partial-onset seizures.

Drugs such as amitriptyline are used independently of the antidepressant effect, providing pain relief more rapidly than the mood-elevating effect and at a much lower dose. For example, the dose for depression is up to 200mg⁹ while the dose for pain is around 10mg, increasing slowly every three to seven days to 30–50mg.¹⁶ The side-effects of tricyclic antidepressants include dry mouth, postural hypotension, falls, constipation, sedation and urinary retention.

Older adults may need pre-treatment counselling for some of these preparations. Patients and carers may become confused as to their use in pain control and therefore may omit some of the tablets, thinking they are for depression.

Topical agents

These gels and creams can be prescribed or bought OTC and have been found to be helpful as an adjuvant, particularly NSAID creams. Capsaicin (hot chilli pepper) has some evidence of efficacy in diabetic neuropathy and postherpetic neuralgia. However, some older adults may be reluctant to use this because of the burning effect of the cream. Alternatively, lidocaine plasters can be used.

General considerations

Most, if not all, drug information booklets are based on the assessment of the pharmacokinetic profile of a drug in the young, healthy, male subject and trials are not carried out in older subjects for

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Capsaicin, the active component of chilli peppers, is used as a topical agent to relieve pain associated with diabetic neuropathy and postherpetic neuralgia



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Conclusion

The prevalence of pain in older adults living in the community is high and the impact of this pain can be quite devastating. Managing pain in this group is not always as straightforward as for their younger counterparts. Pharmacological interventions are not without risks and awareness of the age-related changes that can influence metabolism is paramount. There is a place for multimodal prescribing, which has been used successfully even in the oldest patients. However, when prescribing analgesics for pain, nurses must be aware of the common misconceptions of pain in older people and not let them influence their practice.

Effective pain management can be achieved regardless of age and it is important to listen to the patient's perspective and apply strategies that are acceptable to them, which will ultimately enable optimal concordance.

References

1. US Census Bureau. *International Data Base*; 2008. Available from: www.census.gov/ipc/www/idb/tables.html.
2. Ferrell BA, et al. Pain in cognitively impaired nursing home patients. *J Pain Symptom Manage* 1995;10:591-8.
3. Valkenburg HA. Epidemiologic considerations of the geriatric population. *Gerontology* 1988;34 Suppl1:2-10.
4. Blomqvist K, et al. Living with persistent pain: experiences of older people receiving home care. *J Adv Nurs* 2002;40:297-306.
5. Popp B, et al. Management of chronic pain in the elderly: pharmacology of opioids and other analgesic drugs. In: Ferrell BA, Ferrell BR, editors. *Pain in the elderly*. Seattle: IASP Press; 1996.
6. Fine PG. Opioid analgesic drugs in older people. *Clin Geriatr Med* 2001;17:479-87.
7. Mangoni AA, et al. Age-related changes in pharmacokinetics and pharmacodynamics: basic principles and practical applications. *Br J Clin Pharmacol* 2004;57:6-14.
8. Drago R. Management of pain by pharmacological intervention in older adults. In: Schofield P, editor. *The management of pain in older people*. Oxford: Wiley-Blackwell; 2007.
9. MIMS February 2009.
10. MHRA. Non-steroidal anti-inflammatory drugs: cardiovascular risk. *Drug Safety Update* 2009;2(7):3-4.
11. McQuay H. Relief of chronic non-malignant pain. In: Morris PJ, Malt RA, editors. *Oxford textbook of surgery*. Oxford: Oxford University Press; 1994.
12. Public Citizen's Health Research Group. Worst pills, best pills. Available from: www.worstpills.org/public/page.cfm?op_id=414.
13. Rollason V, et al. Pharmacogenetics of analgesics: toward the individualization of prescription. *Pharmacogenomics* 2008;9:905-33.
14. Bandolier. Oxford league table of analgesics in acute pain. Available from: www.medicines.ox.ac.uk/bandolier/booth/painpag/Acutrev/Analgesics/Leagtab.html.
15. Holdcroft A, et al. Recent developments: management of pain. *BMJ* 2003;326:635-9.
16. Stannard CF, et al. *Pain*. Edinburgh: Churchill Livingstone; 2005.
17. Reyes-Gibby CC, et al. Impact of pain on self-rated health in the community-dwelling older adults. *Pain* 2002;95:75-82.
18. Milton JC, et al. Prescribing for older people. *BMJ* 2008;336:606-9.
19. Cooper R, et al. Stakeholders' views of UK nurse and pharmacist supplementary prescribing. *J Health Serv Res Policy* 2008;13:215-21.
20. Kaasalainen S, et al. Pain management decision making among long-term care physicians and nurses. *West J Nurs Res* 2007;29:561-80.
21. Middleton JJ, et al. An exploratory study of pain in the institutionalised elderly. *Am J Alzheimers Dis Other Dement* 1997;12:159-66.
22. Pasero C, et al. Pain in the elderly. In: McCaffery M, Pasero C, Pasero CL, editors. *Pain*. Toronto: Mosby; 1999.
23. Katsma DL, et al. Elderly pain assessment and pain management knowledge of long-term care nurses. *Pain Manag Nurs* 2000;1:88-95.
24. Finnick M, et al. Long-term care nurses identify educational needs regarding quality assessment and improvement. *J Contin Educ Nurs* 1992;23:278-81.
25. McCaffery M, et al. Nurses' personal opinions about patients' pain and their effect on recorded assessments and titration of opioid doses. *Pain Manag Nurs* 2000;1:79-87.

obvious ethical reasons. Older people have distinct changes in their physiology due to age, not pathological processes, and drugs can produce greater and more prolonged effects. When prescribing pain medication for older people, route of administration, dose and time interval need to be considered.

Apart from obvious pharmacological factors, including side-effects, contraindications and dosage, there are a number of specific age-related considerations that should be taken into account:

- Older adults, like any other age group, will respond better to treatment if they are given the opportunity to make an informed choice. Therefore, explanation is essential, giving patients the opportunity to ask questions and decide whether or not they wish to participate in the treatment plan.
- Drugs should be labelled clearly and the rationale and timings clearly explained. Bottles should be accessible. Clear information regarding side-effects and contraindications should be given.¹⁷
- A recent study on prescribing suggest that older adults should have their drugs reviewed at least annually or more often if taking more than four different drugs.¹⁸
- Older people should be closely monitored for cognitive impairment as an effect of their medication, or if caused by disease, assistance should be in place to monitor their treatment regimen and concordance.

Prescribing issues

While nurse prescribing is viewed by many to offer patient benefits, some barriers and challenges have recently been highlighted.¹⁹ There are a number of issues that need to be considered when prescribing analgesic drugs in particular. Much of the research in this area has concerned appropriate assessment of pain in older adults and difficulties in drug treatment of pain, prescribing and the administration of pain medications have yet to be studied.²⁰

The beliefs and attitudes of professional caregivers play a significant role in pain management for older adults. Assuming that pain is a normal consequence of ageing, fear of prescribing opioids because of their side-effects, or the assumption that patients who do not report pain have no pain, are all-too-common misconceptions.^{21,22}

As-needed medication often fails to control pain as a result of nurses not identifying the presence of pain in the first place²³ and older nurses are less likely to believe self-reporting from older patients than their younger counterparts.²⁴ Nurses' personal opinions about patients' pain also influence the choice of opioid dose and can contribute to the under-treatment of pain.²⁵ A recent study has consolidated these issues while demonstrating uncertainty about the accuracy of assessment, fear of opioids and importantly the influence of doctors' trust in nurses' clinical skills.²⁰ All are factors that can influence safe and effective prescribing of pain for older adults.

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