Pain management in residential aged care facilities

Steven Savvas, Stephen Gibson

CPD

Background

Persistent pain is prevalent in aged care facilities and there are a number of barriers that make effective pain management more difficult to achieve in this setting.

Objective

The aim of this article is to provide an evidence-based approach to assessment and management of pain experienced by residents of aged care facilities.

Discussion

Barriers to effective pain management in residential aged care facilities include patient beliefs and attitudes towards pain, communication deficits and cognitive impairment, frailty and its effect on pharmacotherapy, and limited evidence of comprehensive pain management strategies for people with dementia. Education programs, developments in observational behaviour scales and stepwise pain management protocols have enabled good progress to be made in addressing these obstacles and improving patient outcomes.

Keywords

homes for the aged; pain management; pain management

Persistent, bothersome pain is a very common health issue in residential aged care facilities and a review of the literature also suggests suboptimal use of analgesics in this setting.[1] This is unsurprising as risk factors for inadequate pain management include older age[2] and the presence of cognitive impairment.[3] Pain management in aged care facilities is challenging and a number of barriers have been identified, including patient beliefs and attitudes, altered age-associated drug response profiles that may affect pharmacotherapy, and diseases and disorders that impair communication or insight, such as dementia. Early studies showed a lack of analgesic use in practice, particularly for those with dementia,[3] though more recent work suggests this trend may have now reversed.[4,5] Great strides are being made in regards to education and fostering awareness of pain management in residential aged care facilities, the development of pain identification and assessment scales for people with dementia, and proof-of-concept evidence for pain management approaches. Implementation of Australian Pain Society guidelines for best practice management of pain in aged care facilities[6] can improve pain relief and analgesic prescription practice,[7] as well as increase nursing staff confidence and overall pain management standards in the Australian residential aged care setting.[8]

For mild aches and pains, pain management that addresses symptomatic relief may be sufficient. If pain is more persistent, symptomatic relief may only be needed when pain is particularly problematic, such as prior to activities of daily living. When pain is persistent, interferes with function and is non-responsive to conventional treatment, a more careful assessment with an integrated biopsychosocial approach may be required, including input from a specialist pain service in some cases.

Attitudes to pain

Elderly patients may not articulate their pain experience for a number of reasons, and this may be affected by their level of cognitive impairment. In those with sufficient cognitive function, the main barriers to accurate self-reporting of pain are their age-related pain beliefs and attitudes. A study in residential aged care facilities suggests that, compared with nurses, patients more strongly endorse the belief that persistent pain is a normal part of ageing and there is little potential for improvement.[9] Other attitudes include fear of addiction to pain medications and reluctance to seek help for fear of an acknowledgement of disease progression or further functional dependence.[9] Attitudes of stoicism and reluctance are also age-dependent and older adults are increasingly more cautious about labelling sensations as 'painful', and are reticent in reporting pain; this is especially the case for patients over the age of 60 years.[10] Physicians and nursing staff need to dispel these beliefs and attitudes, and encourage, support and even coax patients into expressing their pain experience. If patients do not acknowledge their pain, rephrasing using similar words such as 'discomfort', 'throbbing', 'aching' and 'soreness' may elicit a different response. When a patient is unlikely to self-report pain, assessment should be conducted when warranted, and routinely at least every few months.[11]

Assessment of pain in residential aged care facilities

A comprehensive pain assessment is important to design a tailored pain management program for a patient in an aged care facility.[12–14] Correct diagnosis of the cause of pain is needed as different types of pain are more responsive to certain treatments and the underlying cause of pain may be remediable. Assessment of persistent pain includes evaluating current and past pain history, concurrent medical conditions, current medications, mood and quality of life. If the pain seems disproportionate or systemic, then consider whether it is being amplified by central nervous system sensitisation.[15] Neuropathic symptoms, patients' reports of multifocal pain and/or comorbid somatic symptoms may be indicators of centralised pain. A physical examination should be conducted with the patient at rest and during mobilisation, which should include weight-bearing, walking, sitting and getting up, as well as a full range of articulated limb movements. Diagnostic investigations may be indicated but care is needed as radiographic changes, particularly in joints, are common with increasing age, but correlate poorly with the experience of pain in conditions such as osteoarthritis.[16]

Pain assessment tools

A number of pain assessment tools are appropriate for use in residential aged care facilities and can be divided into self-report tools, observational behavioural tools and sensory testing tools.

Self-report tools

Despite potential attitudinal barriers to patients accurately reporting their pain, self-reporting is still the gold standard. Self-reporting scales incorporate words, pictures or numbers. The most effective scales are simply worded and easily understood, and include the Numerical Rating Scale (with pain rated from 0 to 10) and the Verbal Descriptor Scale (rating pain as either 'no pain, 'slight pain', 'mild pain', 'moderate pain', 'severe pain', 'extreme pain' or 'the most intense pain imaginable'). Multi-dimensional scales, such as the Brief Pain Inventory,[17] are more complex but can monitor pain intensity and pain-related interference in the patient's life.

Observational tools

Patients with cognitive impairment can often self-report pain in a reliable and valid manner,[18] although as dementia worsens, proxy scales may have increasing usage. Generally, these tools detect the presence or absence of pain in those with dementia when self-reporting is insufficient. The tools typically measure behaviours that may be manifestations of pain, but cannot differentiate from similar behaviours that are unrelated to pain (such as exertion), resulting in high false-positive rates of 25–30%.[19] There is no consensus on which tool is best so any of those developed for geriatric settings are suitable. Examples include the ABBEY,[20] PAINAD,[21] DOLOPLUS-2,[22] NOPPAIN[23] and PACSLAC.[24] These tools differ in the items that describe pain, ease of use and time to administer. Recently, some of these scales have also been found to be sensitive measures of pain severity.[19]

Although there are several observational scales, key behaviours indicative of pain are common to all. The top three behaviours are facial expressions (such as frowning, sadness, grimacing), body language (including guarding, rigidity, fidgeting, pacing, altered gait) and negative vocalisations (crying, pain noises, verbal aggression, moaning, groaning). These three elements are validated in all non-verbal behaviour pain assessment scales for dementia. Other additional behavioural indicators reflect the nuances of the various scales and may include items such as consolability, behavioural changes (eg aggression), physiological changes (such as quickened pulse), physical changes (eg bruises, lacerations), sudden changes in daily routines (eg eating habits, sleeping patterns) and altered breathing. Wandering has recently been shown to be an unreliable indicator of pain and is predictive of lessened pain.[25]

Sensory testing tools

Identification of neuropathic pain often requires the use of sensory testing tools. These tests are non-invasive procedures that can evaluate peripheral nerve function. Comprehensive testing is lengthy. For the physician visiting an aged care facility, simple brush and pinprick tests are more practical. Brush tests are appropriate in identifying allodynia,

a condition associated with neuropathic pain where normally non-painful stimuli are perceived as painful. Pinprick tests are suitable in diagnosing hyperalgesia that is associated with neuropathic pain. Hyperalgesia relates to increased sensitivity to a painful stimulus. Common causes (such as diabetes, cancer, or stroke) or patients' reports of tingling, numbness, shooting or burning pain are flags for neuropathic pain, in which case these tests may be illuminative. However, the utility of such testing in patients with advanced dementia is unclear.

Pain management approaches

A multidisciplinary treatment approach incorporates pharmacological and non-pharmacological therapies.[6] Musculoskeletal pain is the predominant pain-related condition in residential aged care facilities, and pharmacological, non-pharmacological (physical therapy such as exercise, foot orthotics or patellar taping for knee osteoarthritis) and occupational therapies (joint protection education, assistive devices) may all be appropriate.

Non-pharmacological

Physical rehabilitation and exercise, acupuncture and massage, or cognitive and behavioural therapies may have some utility in pain management for aged care (*Table 1*). Exercise-based activities have been shown to be effective in reducing pain and improving physical function in patients with osteoarthritis.[26] Acupuncture[27] and massage[28] are also recommended as adjunctive therapies and evidence shows that both approaches may reduce pain and functional disability from osteoarthritis, although a recent meta-analysis suggests that the efficacy of acupuncture is more modest for some chronic pain than was previously reported.[29] Manual therapy and transcutaneous electrical nerve stimulation (TENS) may also be of benefit

Table 1. Pain management strategies: non-pharmacological approaches

Approach	Considerations
Physical therapy	
Exercise	Recommended pain management strategy Inconsistent evidence whether one type of exercise is better than another Patient preference is the primary consideration Focus on strengthening, flexibility, endurance, and balance Individual capacity limits options
Foot orthotics, patellar taping	Foot orthotics may change gait pattern/muscle activation and reduce joint loading
Manual therapy	Requires significant levels of skill and care
TENS	Consider for persistent pain when patient can provide accurate feedback
Physical modalities (eg heat)	Beneficial for acute pain as effects are transient Monitor for safety if used for patients with dementia
Occupational therapies	
Assistive devices (eg walking frames)	Some evidence of reducing functional decline and pain intensity Can increase pain if used incorrectly
Psychological approaches	
Cognitive behaviour therapy	Demonstrated benefit for patients in aged care Recommended if delivered by a professional
Complementary and alternative medicine	
Acupuncture	Consider for older people as adjunctive therapy May improve function and pain relief Duration of long-term effects are uncertain
Massage, Tai Chi, yoga	Consider for older people as adjunctive therapy Massage may have some benefit for non-specific lower back pain
Nutritional supplements	Some evidence that chondroitin and glucosamine improve pain and function in osteoarthritis

TENS, transcutaneous electrical nerve stimulation

for certain types of persistent pain, although the evidence base is not well established,[30] and manual therapy requires significant levels of care and skill. The biopsychosocial model of pain management advocates targeting the psychological and behavioural components of pain and has value in treating symptoms that accompany centralised or neuropathic pain. High levels of musculoskeletal pain are associated with high levels of sleep disturbance, fatigue and depression.[31] There is some evidence that cognitive behaviour therapy in the elderly has a moderate effect on self-reported pain and small improvements in physical function.[32] Overall, non-pharmacological approaches have a substantive role in pain management and can even be conceptualised in conjunction with pharmacotherapy as an 'analgesic platform'.[33] However, there is still only very limited evidence for the efficacy of non-pharmacological approaches in people with dementia[34] and further research is needed.

Pharmacological

Pharmacological management of pain in residential aged care facilities can be complex as increasing age is accompanied by physiological changes that reduce physiological reserve

Table 2. Pain management strategies: pharmacological approaches

Approach	Considerations
Simple analgesics and anti-inflammatory agents	
Paracetamol	Recommended first-line therapy Well tolerated and side effects are rare Do not exceed recommended maximum daily dose
NSAIDs	High risk of serious side effects in elderly Use for shortest time possible. Increased risk of gastrointestinal side effects when combined with low dose aspirin Topical NSAIDs effective for localised non-neuropathic pain and generally well-tolerated
Opioids	
Weak opioids (eg codeine)	For moderate pain Consider combination with paracetamol Anticipate constipation
Strong opioids (eg morphine)	Indicated for severe pain not responding to non-opioid treatment Side effects such as sedation, nausea and vomiting may worsen at opioid initiation/dose escalation Anticipate constipation Increased falls risk Opioids for pain management rarely leads to addiction
Tramadol	Limited analgesic effect, but lower sedative and respiratory effects Lower risk of constipation Contraindicated in patients with a history of seizures or prescribed other serotonergic drugs
Adjuvants	
Tricyclic antidepressants (eg amitriptyline, nortriptyline)	Good efficacy for neuropathic pain but anticholinergic side effects limit use in older patients Effective for diabetic neuropathy but prescribe with caution as high incidence of side effects Nortriptyline may produce less anticholinergic side effects
Serotonin-noradrenaline reuptake inhibitors (eg duloxetine)	Duloxetine has demonstrated efficacy in some neuropathic pain conditions Recommended for use in older patients with neuropathic pain Generally well tolerated but side effects include hyponatremia, dizziness, abdominal pain, and nausea
Anticonvulsants (eg pregablin, gabapentin, carbamazepine)	Side effects include sedation, dizziness, peripheral edema Elimination of gabapentin/pregablin dependent on renal function Dose reduction for patients with renal impairment

NSAIDs, non-steroidal anti-inflammatory drugs
Nb: Physiological changes in older people have a direct and variable impact on the pharmacokinetics and pharmacodynamics of drugs used in treating pain. Therefore pain management medication needs careful titration to response. Consider a combination of pharmacological and non-pharmacological approaches for comprehensive pain management.

and may increase frailty. There is heterogeneity in the response to medications among elderly patients, due in part to age-associated changes in body mass composition (fat mass increase, muscle mass and body water decrease) and organ function (central nervous system, hepatic clearance and renal system decline). In general, pharmacokinetic and pharmacodynamic changes and, therefore altered drug responses, are to be expected in elderly patients (*Table 2*).[35]

Paracetamol is considered as the most appropriate first-line therapy for persistent pain, particularly musculoskeletal pain. Oral non-steroidal anti-inflammatory drugs (NSAIDs) are typically more effective for chronic inflammatory pain (eg pain related to rheumatoid arthritis), although they are not generally recommended because of gastrointestinal and/or cardiac side effects. If prescribed, NSAIDs should be used for limited periods.[36] Around-the-clock, regular dosing should be considered as nurse-initiated and PRN medications are generally not used as often as required for residents with dementia.

If pain persists with first-line therapies, opioid therapy could be considered (for certain types of pain such as cancer pain and in selected patients with severe non-cancer pain). The approach to using opioid analgesics is to start with low doses and titrate up until treatment goals are met. The increased risk of falls when initiating opioid therapy, particularly in the first 2 weeks when using short-acting opioids, should be kept in mind.[37] Prophylactic treatment of constipation is especially important for older patients, or one of the newer opioid preparations could be considered (eg combination oxycodone/naloxone).

Refining pharmacotherapy for pain management may also include administration of multiple agents with synergistic effects (eg paracetamol in combination with codeine). For neuropathic pain, adjuvants such as certain tricyclic antidepressants (eg amitriptyline, nortriptyline), serotonin-noradrenaline reuptake inhibitors (eg duloxetine for fibromyalgia) or anticonvulsants (eg gabapentin for diabetic neuropathy and post-herpetic neuralgia, carbamazepine for trigeminal neuralgia, gabapentin, carbamazepine or pregabalin for post-stroke central pain) may be appropriate instead.[13] The use of these medications in improving pain seems to be independent of any antidepressant properties these drugs have.[38] Neuropathic pain is difficult to manage and although complete pain relief is usually unachievable, it may be sufficient to reduce pain to tolerable levels and improve pain-related disability. Medication side effects (especially with anticonvulsants) in frail older patients need careful monitoring, and drug–drug interactions (such as paracetamol with certain anticonvulsants) may limit pharmacotherapy options or require downward dose adjustment (*Table 2*).[39]

A stepwise protocol for treating pain[40] has been shown to be effective in reducing pain scores in patients with dementia, as well as reducing behavioural and psychological symptoms of dementia. In particular, verbally agitated behaviour (eg complaining, constant attention seeking, repetitive questions and negativisms) was reduced after analgesic intervention, as were physically aggressive (eg hitting, kicking, grabbing) and non-aggressive behaviours (eg pacing, restlessness, repetitive mannerisms).

Conclusion

Good pain management in residential aged care settings must address a number of barriers such as attitudes to pain, communication deficiencies, heterogeneity of responses to pharmacotherapy in elderly frail patients and limited evidence for effective treatment approaches for patients with dementia. However, developments including behavioural observational tools and stepwise pain protocols may help address some of these obstacles.

Authors

Steven Savvas PhD, Research Officer, Clinical Division, National Ageing Research Institute, University of Melbourne, Parkville, VIC. s.savvas@nari.unimelb.edu.au

Stephen Gibson BBSc (Hons), PhD, Deputy Director, National Ageing Research Institute, University of Melbourne, Parkville, VIC

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