

# Pain Management in Moderate and Advanced Dementias

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*This article highlights the complex challenges seen when managing pain in patients with moderate or advanced dementia. Recent evidence demonstrates that pain is often poorly recognized and treated in patients with cognitive impairment. The progressive decline in cognitive function often leads to difficulties in expressing and recalling painful experiences. Making pain assessments routine and combining patient reports, caregiver reports, and direct observation may help alleviate this poor recognition of pain. Once pain is confirmed, a comprehensive history and physical examination are central in determining the underlying cause of pain and in choosing the best modality to treat the pain.*

*Key words: dementia, cognitive impairment, pain, opioids, assessment*

## Introduction

The assessment and management of pain in moderate and advanced dementias pose significant challenges, although pain can be safely and effectively managed in this population. A growing amount of evidence is revealing that undertreatment of pain in patients with dementia is quite common.<sup>1–3</sup> For example, patients with advanced dementia recovering from hip fracture surgery have been shown to receive only a third of the amount of opioid analgesia compared with cognitively intact adults.<sup>4</sup> Although pain is to be expected after such a surgery, only a quarter of patients with advanced dementia received any standing analgesia.<sup>4</sup> In another study of older adults living in the community, 40% experienced daily pain, with only one quarter of those individuals receiving analgesics of any kind.<sup>5</sup> Patients with dementia were at the highest risk for inadequate treatment, with a 20%

decreased probability of receiving analgesics for daily pain relative to patients with normal cognitive performance. Furthermore, in a study of residents living in long-term care, documentation of pain and analgesic use decreased as cognitive impairment increased. This discrepancy could not be explained by differences in diagnoses that commonly result in pain.<sup>6</sup>

There are several possible reasons why individuals with dementia may be at risk for the undertreatment of pain. Age is a risk factor not only for dementia; it also appears to be an independent risk factor for the inadequate treatment of pain.<sup>1,5,7</sup> In a study of older adults with cancer living in long-term care, as age increased, a greater proportion of patients with daily pain received no analgesic drugs (21%, 26%, and 30% of patients in the 65–74, 75–84, and 85-and-older age groups).<sup>1</sup> This association has been seen in multiple other studies but does not account for all the reasons for undertreat-

ment as individuals with dementia are at even greater risk than their age-matched controls.<sup>5,8</sup> Physician factors play a role, including the fear of exacerbating comorbid illnesses or precipitating adverse effects of opioids such as delirium.<sup>9</sup> There is also a common belief that those with cognitive impairment feel and experience less pain as they commonly report less pain to their health care provider.<sup>2,10</sup> Studies have shown, though, that pain sensitivity and perceptual processing of pain remain largely intact with advanced dementia.<sup>11</sup> It is therefore not a reduction in the actual experience of pain that leads to underreporting but, rather, an inadequate assessment of pain due to poor patient recall and communication of painful symptoms.

## Pain Assessment

Although the perception of pain is relatively unchanged in people with moderate to severe dementia, the expression of pain may be quite different from that in older people with intact cognition.<sup>12</sup> Individuals with advanced dementia may not be able to communicate that they have pain, but there may often be observational signs of distress in their facial expressions, vocalizations, body movements, interpersonal interactions, activity patterns, and mental status.<sup>13–15</sup> It is valuable to use a combination of patient reports, caregiver reports, and direct observation of the patient when assessing pain as there is a lack of evidence that supports any single method.<sup>12,16</sup>

Even people with moderate to severe dementia may be able to communicate the severity of pain currently experienced, although recall of prior levels of pain or evaluation of the effect of the pain on daily function is more difficult.<sup>17</sup> Self-report may be improved if the question is phrased, “How much pain do you have now?” versus, “How much pain have you had over the past day, week, or month?” A variety of pain scales have been developed including a verbally administered 0–10 rating scale, verbal descriptor scales, visual analogue scales, pain thermometers, and Faces Pain Scales that may be able to help with the deter-

mination of pain intensity.<sup>18,19</sup> The choice of which pain-intensity scale to use depends on several factors, including the degree of cognitive impairment as patients with more advanced dementia may have difficulty with a verbal rating scale. The same scale should be used in repeat assessments in order to reliably assess the effectiveness of the therapeutic interventions.

Many observational scales have been developed to measure pain indirectly, although there is no clear standardized assessment tool.<sup>20</sup> The best validated tools include the Pain Assessment in Advanced Dementia (PAINAD), the Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PACSLAC), and the Doloplus-2 scale.<sup>16,21,22</sup> These observational scales have been an important development for patients who cannot respond to questions because these scales rely on observation of behaviours, such as facial expressions, directly by the health care provider or caregivers. These scales are also more specific than relying on physiological responses to pain, including blood pressure and heart rate, as evidence indicates that individuals with dementia often have a blunted autonomic response to painful stimuli.<sup>12,23</sup>

After an initial assessment documents the presence of pain, a more comprehensive assessment and diagnostic evaluation are indicated as the treatment of pain is most successful when the underlying cause of pain is identified and treated.<sup>24</sup> The evaluation requires obtaining a history from both the patient and caregivers that includes details of comorbid health conditions, concurrent medications (including over-the-counter agents), and previous response to analgesics. All efforts should be made to help elucidate the location, radiation, duration, daily fluctuation, and quality of pain as these findings may impact on therapeutic options. A detailed physical examination is necessary to evaluate for common causes of pain in older adults, the most common cause being musculoskeletal disorders such as degenerative spine conditions and arthritis.<sup>24</sup> Other common causes of pain to consider include comorbid conditions such as cancer, myofascial pain syndromes, restless leg syndrome, and peripheral vascular disease. A detailed neurological examination may elucidate neuropathic causes of pain secondary to diabetic neuropathy, postherpetic neuralgia, peripheral vascular disease, and trigeminal neuralgia.

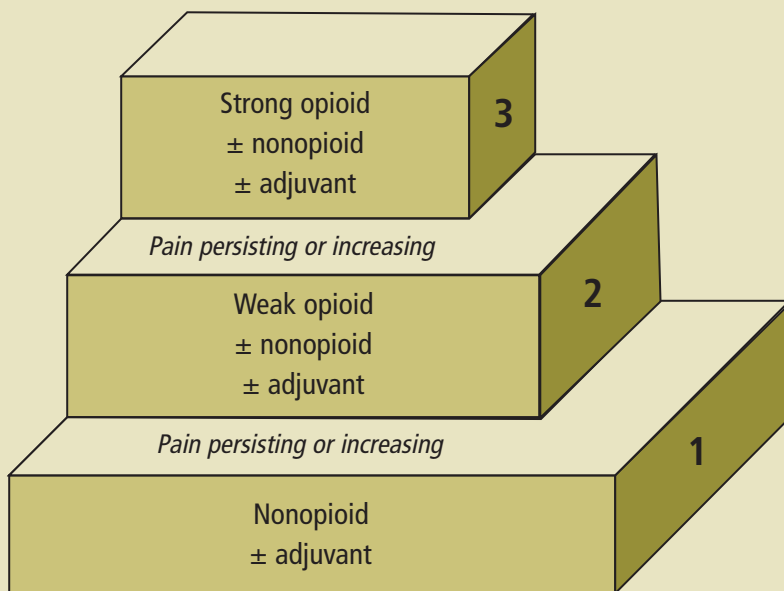
## Pharmacological Treatment

Analgesic medications are the most commonly used modalities to control pain in older adults. Prescribing these medications becomes more complicated in the older adult with dementia due to the pharmacokinetic changes that accompany aging. These include possible decreases in renal or hepatic function, changes in the volume of distribution due to decreased muscle mass and increased body fat, and an increased sensitivity to adverse effects from medications.<sup>25,26</sup>

The choice of an analgesic medication should be made by evaluating the level of pain intensity, the previous responses to analgesic medications, the interaction of the analgesic with comorbid conditions, and the care setting and support services. The World Health Organization (WHO) recommends a step ladder approach when initiating pharmacotherapy (Figure 1).<sup>27</sup> Nonpharmacological interventions and adjuvant drugs should also be considered at every step of the ladder to enhance analgesic efficacy and treat concurrent symptoms.

The first step in the WHO ladder involves mild pain and recommends the use of nonopioid analgesics including acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs). Acetaminophen should be considered the first line of therapy for mild pain as its elimination is not effectively changed with age and side effects at doses less than 2 g are minimal.<sup>10</sup> A maximum dosage of 4 g/d can be considered, although the incidence of side effects may increase, including asymptomatic elevations of aminotransferase levels.<sup>28</sup> There is evidence that regularly scheduled administration of acetaminophen can be given empirically if the presence of pain is uncertain as this may lead to improved activity levels and social engagement in nursing home residents with moderate to severe dementia.<sup>29</sup> The use of NSAIDs, including cyclo-oxygenase 2 selective inhibitors, should be avoided if possible due to the high risk of side effects in this population, including gastrointestinal irritation, renal failure, and cardiovascular adverse events such as worsening

Figure 1: The World Health Organization's "Analgesic Ladder"



Source: World Health Organization, 2009.<sup>37</sup>

heart failure and myocardial infarction.<sup>30,31</sup> If NSAIDs are considered, patients should be monitored frequently including testing of renal function and adverse effects on comorbid conditions including heart failure and hypertension.

For moderate pain or pain that is unrelieved in the first step, an opioid such as hydrocodone or oxycodone should be added to acetaminophen in a fixed-dose combination. This combination of analgesics may provide additive analgesia and reduce the pill burden. Dosing is limited in this second step due to the maximum allowable dose of acetaminophen. Close attention to the total daily dosage of acetaminophen is required because patients commonly receive acetaminophen from other sources including over-the-counter cold preparations.

The third step involves pain that is severe in intensity or that has not improved with the prior two steps. Step three medications include potent opioids such as morphine, oxycodone, hydromorphone, and fentanyl. There is no uniformly preferred agent as there is considerable individual variation in the response to these drugs. The particular opioid chosen should be based on the duration of action, the route administered, and the potential for adverse reactions. Opioids that should be avoided in older adults include propoxyphene and meperidine due to the accumulation of metabolites that may lead to adverse effects such as delirium. Morphine should be avoided in renal failure due to the buildup of active metabolites that may lead to sedation, myoclonus, and seizures.<sup>25</sup>

A recommended approach to dose opioids is to start with low dosages, monitor frequently, and titrate up based on the response and any adverse effects encountered.<sup>24</sup> Unlike acetaminophen and NSAIDs, there is no maximum dose with opioids. These medications can be given as needed in their short-acting formulations for moderate to severe episodic pain; however, an as-needed approach requires a caregiver to perform frequent behavioural pain assessments in patients

### Key Points

Pain is underrecognized and undertreated in patients with moderate to severe dementia.

A routine assessment that combines patient reports, caregiver reports, and direct observation is necessary to effectively assess pain.

Nonsteroidal anti-inflammatory drugs should be avoided, if possible, in older cognitively impaired individuals due to high risks of adverse effects.

Opioids should always be considered for moderate to severe pain.

Opioids are often held responsible for causing delirium, although studies have shown that effective pain management actually decreases its incidence.

who are unable to request pain medications due to cognitive impairment. These frequent assessments may be impractical in certain settings, and around-the-clock dosing may be an appropriate alternative. Medications for persistent pain should be provided around the clock, with additional doses of a fast-onset, short-acting drug for breakthrough pain. A standard effective and safe dose for a breakthrough opioid is approximately 10% of the total daily dose.<sup>26</sup>

Common side effects of opioids include constipation, nausea, sedation, and delirium. Constipation is the most common side effect and the one for which tolerance does not develop. All patients started on opioids should also be started on a stimulant laxative such as senna. Opioids are often held responsible for causing delirium in cognitively impaired adults, although studies have shown that effective pain management actually decreases the incidence of delirium in cognitively intact patients.<sup>32–34</sup> Respiratory depression is the most feared complication. However, this is a dose-

dependent effect, and with proper dosing this adverse event is very rare.<sup>25</sup>

Other adjuvant medications for pain include certain antidepressants, anticonvulsants, and topical agents. Tertiary tricyclic antidepressants, such as imipramine and amitriptyline, should be avoided in older patients due to their anticholinergic effects including delirium, orthostatic hypotension, and urinary retention.<sup>35</sup> Secondary amines, including nortriptyline and desipramine, have less anticholinergic activity with comparable analgesic efficacy. Gabapentin is widely used in the treatment of neuropathic pain, but common side effects of somnolence and ataxia may limit the use in this population. Local anesthetics such as lidocaine and capsaicin may be considered for localized areas of pain, although the initial burning sensation from capsaicin may make it difficult to administer to cognitively impaired patients.<sup>36</sup>

### Conclusions

There is a high risk for undertreatment of pain in patients with dementia; however,

### Clinical Pearls

Patients with advanced dementia may not be able to effectively communicate that they have pain, but there may often be observational signs such as grimacing.

Around-the-clock dosing of analgesics may be the most appropriate dosing schedule for a patient with advanced dementia who may not be able to recall or communicate their pain experience.

pain can be effectively managed in this population. Adequate pain control in patients with moderate to severe dementia depends on an appropriate and routine pain assessment using a combination of patient reports, caregiver reports, and direct observation of behaviours that may indicate pain. Once pain is confirmed, a comprehensive search for causes of pain is paramount to choose the best modality to treat the pain. The science of diagnosing and treating pain in patients with moderate to severe dementia, though, is still in its early stages, and there remains a great need for better research into how best to approach these vulnerable patients.



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