

Pain in the older adult can present unique challenges. Cognitive impairment and polypharmacy can make assessment and treatment difficult. An interdisciplinary team that includes family caregivers is essential. A rational approach to the ambulatory older patient with nociceptive pain would be to begin with regularly dosed acetaminophen, then add an NSAID if appropriate. The next step would be to add a low-dose opioid. If the patient uses a sufficient quantity of the opiate, dosing should be spread out throughout the day. Once a stable dose is reached, one can use a sustained-release formulation. Nonopioids should be continued throughout the titration process.

**Key words:** pain, analgesia, opioids, older adult, pain assessment

## Treatment of Pain in the Older Adult

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### Introduction

There are a number of challenges to treating pain in older patients. As people age, the number of medical problems they have increases and they tend to be on more prescription drugs.<sup>1</sup> Inappropriate prescribing of medications can increase the risk of drug interactions with potentially serious side effects. Before any treatment is started, it is essential to take a complete medication history.

Hearing impairment can make it very difficult to get a good history. In addition, mild to severe cognitive impairment may make it impossible to properly treat the patient without assistance. Patients may forget what medications they take, or they may be unable to express themselves. Dementia can lead to difficulties with compliance as well.

It is important that an interdisciplinary team approach be taken. The physician may or may not coordinate the team. The pharmacist can be asked to prepare blister packages to help with compliance. A visiting nurse can assess compliance and ensure effective symptom control.

Caregivers play a vital role. They spend a lot of time with the patient and can answer questions that the patient cannot. They can bring the patient's medications, take down instructions, and help to ensure compliance.

A final challenge is the ability of the physician. Pain management is poorly taught in medical school and residency. For instance, an unpublished survey distributed by the author in 2001 revealed significant deficiencies in basic knowledge, including assessment of pain and the appropriate use of opioids.

The following paper will discuss an approach to pain in the older patient.

Although it is similar to the treatment of pain in younger people, there are a few key points that must be noted.

### Assessment of Pain

A complete guide to the assessment of pain is beyond the scope of this paper. There are numerous mnemonics taught at various institutions, and one sample of appropriate questions is provided (Table 1). Before initiating treatment, it is important to determine whether the pain is nociceptive, neuropathic, or both, as the treatment may vary considerably.<sup>2</sup>

### Pharmacologic Treatment of Pain

In 1986, the World Health Organization released the Pain Relief Ladder (Figure 1).<sup>3</sup> The principle is that the lowest effective dose of an opioid should be used to minimize the impact of its effects.

The first step in the ladder includes

**Table 1:** Information to Obtain in the Assessment of Pain

Onset
Duration
Pattern
Location
Quality
Intensity
Radiation
Aggravating and relieving factors
Impact on ADLs and quality of life
Treatments and medications used

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nonopioid analgesics, primarily acetaminophen and the various nonsteroidal anti-inflammatory drugs (NSAIDs). The second rung lists weak opiates alone or in combination with nonopioid drugs. The final step of the ladder adds strong opioids to the armamentarium. The WHO recommends regular dosing of pain medication to avoid prolonged pain while waiting for "as needed" medication to take effect.

### Nonopioid Analgesics

Acetaminophen is probably the safest analgesic for the older adult population. It does not rely on renal function for its metabolism and has no significant side effects. It is even safe to use in patients with liver disease. For patients with constant mild-to-moderate pain, acetaminophen should be administered around the clock with a total daily dose of 3–4 g for most patients.

NSAIDs are effective for the treatment of many types of pain. They are particularly useful in inflammatory pain and bone pain from metastatic disease.<sup>4</sup> However, they have a significant side effect profile,<sup>5</sup> and may cause GI, cardiac, and renal side-effects; thus, they should be used with caution in the older adult. A newer generation of NSAIDs, selective COX II inhibitors, may decrease the risk of GI bleeding but there is growing evidence that their long-term use may increase the risk of cardiovascular events.<sup>6</sup>

### Opioid Analgesics

There are many opioid medications available on the market. Some are pure opioid agonists, some are agonist-antagonists.<sup>7</sup> Not all drugs are appropriate for all patients, and the sheer number of them can be confusing. The answer is to become familiar with a small number of opioids with different characteristics and different indications. In order to properly manage pain it is essential to know the equianalgesic doses of these drugs (Table 2). The following opioid roster is a reasonable one. Most important in opioid prescribing in the older adult is to start with a much

lower dose than one would use in a younger patient and increase the dose slowly.<sup>8</sup> By doing this, larger doses and good pain control can usually be attained and tolerated.

### Codeine

Codeine is classified as a weak opiate. Although available on its own, it is often found in combination with caffeine and either acetaminophen or acetylsalicylic acid. There are several strengths of codeine-containing acetaminophen compounds (with the numbers 1–4 in the name): 8 mg (#1), 15 mg (#2), 30 mg (#3), and 60 mg (#4). Each of them also contains 15 mg of caffeine. The 8 mg formulation is available without prescription in some jurisdictions. On its own the drug is available in tablet, syrup, sustained release, and parenteral formulations.

Codeine itself does not have an analgesic effect. It needs to be metabolized to morphine by the liver.<sup>7</sup> There are certain ethnic groups, including 10–20% of Caucasians, in which a proportion of the population lacks the appropriate enzyme.<sup>9</sup> In these patients it is not a stronger but a different opioid drug that is required.

### Morphine

Morphine has six times the potency of codeine.<sup>10</sup> It is metabolized by the liver, but its active metabolites are excreted by the kidneys.<sup>11</sup> These metabolites can accumulate in patients with a decreased Glomerular Filtration Rate (GFR), so the dose should be decreased or another opioid used in older patients or those with impaired renal function.

**Table 2: Common Opioid Conversions**

codeine: morphine	6:1
morphine: hydromorphone	5:1
morphine: oxycodone	2:1

Morphine can be given parenterally and is available in a variety of different oral formulations. The sustained-release capsules come in doses as low as 10 mg, and some brands can be opened and the contents mixed with pureed foods for people who cannot swallow pills.

### Hydromorphone

More expensive than morphine, hydromorphone is five times as potent.<sup>10</sup> Although its metabolites undergo renal clearance, the advantage of hydromorphone over morphine is that of its potency: a much smaller dose can be used for equianalgesic effect, so there will be fewer metabolite-related side effects. For this reason, hydromorphone should be considered as the strong opioid of choice for many older patients with significant nociceptive pain. It is available in similar formulations as the others.

### Oxycodone

Oxycodone has no renally cleared metabolites,<sup>12</sup> which makes it an ideal drug for dialysis patients and anyone with renal impairment. It is twice as potent as morphine, though some literature lists it as equianalgesic.<sup>10</sup>

An oral drug only, it is available on its own in immediate and sustained-release

**Table 3: Key Points**

Treating pain in the older adult requires an interdisciplinary approach.

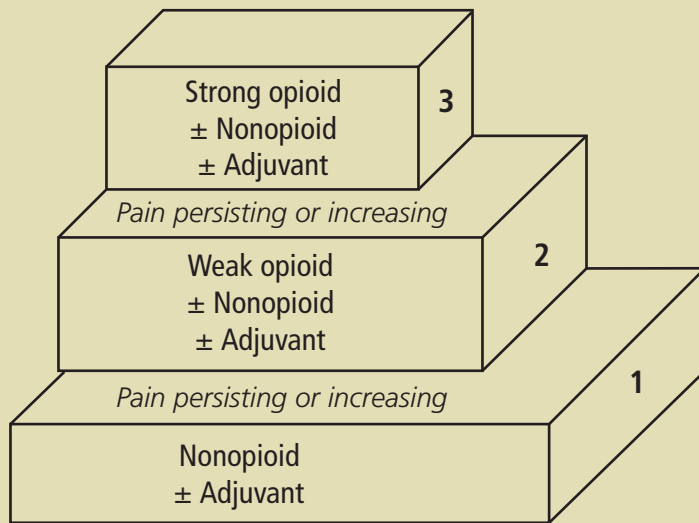
Challenges in treating pain include presbycusis, dementia, and compliance difficulties.

A good roster of opiate analgesics includes codeine, morphine, oxycodone, hydromorphone, and fentanyl.

Useful drugs in treating neuropathic pain are gabapentin and tricyclic antidepressants.

Meperidine should not be used to treat pain in older patients.

**Figure 1:** World Health Organization Pain Relief Ladder.



forms, or compounded with ASA or acetaminophen. The most common compounded forms contain 5 mg of oxycodone.

### Fentanyl

Extremely potent and fast acting, fentanyl has been adapted for use in chronic pain as a transdermal patch. The side effect profile may be more tolerable for older patients and those with renal impairment. However, because of its potency, patients should be taking the equivalent of 50 mg or more of oral morphine per day before even the smallest patch (25 mcg/h) is considered. A 12.5 mcg/h patch is currently in development.

### Other Opioids

#### Meperidine

Meperidine is contraindicated in older adults. It is metabolized by the liver to nor-meperidine, and in patients with normal renal function the half-life of this metabolite is 15–30 hours.<sup>13</sup> In an older patient the half-life may be even longer. Repeated dosing can lead to accumulation of nor-meperidine, which in turn can lead to seizures. The myth that meperidine is the drug of choice in biliary colic and pancreatitis has been clinically proven to be false.<sup>14</sup>

### Methadone

Methadone is an oral drug that is useful in the treatment of both nociceptive and neuropathic pain. However, its pharmacokinetics are complicated and it may be prescribed only by a physician trained and licensed in its use for pain control.

### Side Effects of Opioid Analgesics

The most serious side effect of opiate use is constipation. In older adults the prevalence of constipation without opiates is greater than 25%,<sup>15</sup> a tendency that puts them at increased risk of this side effect. There is a fair deal of morbidity associated with chronic constipation, and it is easier to prevent than treat. Any patient prescribed opioids should also be given a stool softener (milk of magnesia or docusate sodium) and a stimulant laxative (such as senna or bisacodyl).

Other side effects can include confusion and drowsiness. These can be due to either the opiate itself or to its metabolites, especially in the case of morphine. In patients who experience these effects, it is important to assess whether the drug is correct or the dose is too high. In general, morphine should be avoided in older adults, and, dosing of other opiates should begin low with a gradual titration up until relief is obtained.

### Neuropathic Pain

A number of drugs are available for the treatment of neuropathic pain. Gabapentin, an anticonvulsant, is probably the most effective pharmacologic therapy for neuropathic pain. It seems to have a synergistic effect with morphine in the treatment of pain due to diabetic neuropathy.<sup>16</sup> This is believed to be a class effect and other opioids could be substituted. In the older adult a low dose (as low as 100 mg twice a day) should be started, and the drug should be titrated to effect more slowly than in younger patients. As gabapentin is renally cleared, care must be taken when prescribing it for hemodialysis patients and anyone with decreased creatinine clearance.

Tricyclic antidepressants are also used for neuropathic pain. Amitriptyline, desipramine, imipramine, and nortriptyline have all been used. Amitriptyline should be used with caution in older adults because of the seriousness of anticholinergic effects. The smallest dose should be started and close attention should be paid to side effects such as delirium or drowsiness. Older patients with CNS effects may be at higher risk for falls.

Other anticonvulsants, such as phenytoin and carbamazepine, are less effective for neuropathic pain and are mainly of historic value. For instance, carbamazepine used to be the drug of choice for trigeminal neuralgia.<sup>17</sup> These drugs are often used as drugs of last resort.

### Conclusion

The treatment of pain in the older adult can present a challenge. Cognitive impairment, decreased renal function, polypharmacy, and an increased sensitivity to drugs require a slow, stepwise approach. An interdisciplinary team that includes family caregivers is essential to ensure the safe delivery of care.



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