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Management of Persistent Pain in the Older Patient A Clinical Review

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Abstract

Importance—Persistent pain is highly prevalent, costly, and frequently disabling in later life.

Objective—To describe barriers to the management of persistent pain among older adults, summarize current management approaches, including pharmacologic and nonpharmacologic modalities; present rehabilitative approaches; and highlight aspects of the patient-physician relationship that can help to improve treatment outcomes. This review is relevant for physicians who seek an age-appropriate approach to delivering pain care for the older adult.

Evidence Acquisition—Search of MEDLINE and the Cochrane database from January 1990 through May 2014, using the search terms *older adults*, *senior*, *ages 65 and above*, *elderly*, and *aged* along with *non-cancer pain*, *chronic pain*, *persistent pain*, *pain management*, *intractable pain*, and *refractory pain* to identify English-language peer-reviewed systematic reviews, meta-analyses, Cochrane reviews, consensus statements, and guidelines relevant to the management of persistent pain in older adults.

Findings—Of the 92 identified studies, 35 evaluated pharmacologic interventions, whereas 57 examined nonpharmacologic modalities; the majority (n = 50) focused on older adults with osteoarthritis. This evidence base supports a stepwise approach with acetaminophen as first-line therapy. If treatment goals are not met, a trial of a topical nonsteroidal anti-inflammatory drug,

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tramadol, or both is recommended. Oral nonsteroidal anti-inflammatory drugs are not recommended for long-term use. Careful surveillance to monitor for toxicity and efficacy is critical, given that advancing age increases risk for adverse effects. A multimodal approach is strongly recommended—emphasizing a combination of both pharmacologic and nonpharmacologic treatments to include physical and occupational rehabilitation, as well as cognitive-behavioral and movement-based interventions. An integrated pain management approach is ideally achieved by cultivating a strong therapeutic alliance between the older patient and the physician.

Conclusions and Relevance—Treatment planning for persistent pain in later life requires a clear understanding of the patient's treatment goals and expectations, comorbidities, and cognitive and functional status, as well as coordinating community resources and family support when available. A combination of pharmacologic, nonpharmacologic, and rehabilitative approaches in addition to a strong therapeutic alliance between the patient and physician is essential in setting, adjusting, and achieving realistic goals of therapy.

The Patient's Story

Mrs L is a 90-year-old widow who has experienced persistent pain for more than 30 years. Her medical conditions include osteoarthritis, vertebral compression fractures, depression, insomnia, and hypothyroidism. She first developed left arm and leg pain in the 1970s because of a schwannoma at C6-7. She underwent 2 operations, which were successful in removing the spinal cord tumor but left her with persistent bilateral leg pain as well as lower extremity spasticity. She has had numerous falls in recent years; at least one was caused by polypharmacy, and another resulted in a wrist fracture.

Mrs L has tried many analgesics, including opioid and non-opioid medications, but these provided minimal relief or had to be stopped because of adverse effects. She has also tried antidepressants of various classes for depression and pain and benzodiazepines for insomnia, all of which were unhelpful. Baclofen and tizanidine proved ineffective for her lower extremity spasticity. She also failed to benefit from treatments not involving oral medications, including trigger point corticosteroid/local anesthetic injections, acupuncture, physical therapy, self-hypnosis, and psychotherapy, among others.

On presentation to Dr O (her geriatrician), Mrs L reported leg, shoulder, and hand pain. She also reported depressed mood, hopelessness, and passive suicidal ideation. Her pain/antidepressant regimen consisted of methadone (10 mg twice daily); hydromorphone (1-2 mg every 3 hours as needed); gabapentin (1200 mg 3 times daily); venlafaxine extended release (75 mg twice daily); and diclofenac gel as needed.

Mrs L was dependent in all basic and most instrumental activities of daily living (ADL) and lived at home with 24-hour care. Her home attendant reported that Mrs L was able to use her walker for short distances but was mostly wheelchair bound. Her 2 daughters reside several hundred miles away but telephone her regularly and visit whenever possible.

On examination, Mrs L had atrophy and weakness of all extremities, a flexion contracture of the left hand, and left-sided foot drag. She required a 1-person assist to stand. Her Montreal Cognitive Assessment (MoCA) score was 20/29 (she did not attempt the cube copy), a score

consistent with mild cognitive impairment. She performed most poorly on the 3 tests of executive functioning. Like the Mini Mental State Examination (for which users must now pay), the MoCA has a maximum possible score of 30. A score of 26 or greater on the MoCA is considered normal.

Perspectives

Mrs L: *I can't remember a time without pain since my neck surgery. I know it's not going to go away, but I would like to have less pain. I would also really like to be able to go the bathroom by myself but right now I can't.*

Dr O: *Trying to maintain her function and minimize her risk for falls/injury was high on my list of goals. I wasn't sure I had much to offer in terms of pain management, as she had already tried almost every treatment I could think of.*

Putting Mrs L's Care Into Context

Persistent pain is highly prevalent, costly, and frequently disabling in later life.¹⁻⁶ It is most often attributable to musculoskeletal causes,⁷ usually involves multiple sites,⁸ and rarely occurs in the absence of other comorbidities.⁹ Based on her history and physical examination, Mrs L likely has a mixed pain disorder, ie, a combination of both nociceptive (osteoarthritis, compression fractures) and neuropathic (surgery for schwannoma) pain. Persistent pain is similar to other geriatric syndromes in that it results from accumulated impairments in multiple systems. As with other geriatric syndromes, diagnostic workups frequently fail to contribute useful information,^{10,11} but interventions can be effective even in the absence of a firm diagnosis.¹² Consistent with other geriatric syndromes, persistent pain in older adults frequently develops via a multifactorial pathway, resulting in adverse sequelae^{6,13} that include poor self-reported health, decreased quality of life, and significant disability that often occurs and is attributable to falls, depression or anxiety, sleep impairment, and decreased socialization.¹⁴⁻¹⁶ Older patients who experience persistent pain should be routinely assessed for its effect on quality of life, gait, mood, and functioning. Dr O seeks to maintain Mrs L's present level of independence, however compromised, and if possible to restore some of the functional ability she has lost. At the same time, Dr O aims to reduce her pain, minimizing the risks of medication-related morbidity (eg, falls, delirium). Dr O's goals mirror those of the patient, ie, pain reduction, improvement in ADL functioning, and preservation of independence.

We describe barriers to the management of persistent pain among older adults, summarize pharmacologic and nonpharmacologic approaches for its management, present rehabilitative modalities that are important to consider, and highlight aspects of the patient-physician relationship that can help to improve outcomes for patients like Mrs L and others who present on the spectrum of persistent pain.

Methods

We searched MEDLINE and the Cochrane database for English-language reports of human studies published from January 1, 1990, through May 31, 2014, using the search terms *older*

adults, senior, ages 65 and above, elderly, and aged, along with non-cancer pain, chronic pain, persistent pain, pain management, intractable pain, and refractory pain (search results are provided in the eAppendix in the Supplement). Given the paucity of randomized controlled trials focusing on older adults with persistent pain, we also included reviews, published guidelines, and consensus statements. We synthesized and graded the evidence of the retained intervention studies using a standard approach.¹⁷ Our recommendations are based on this evidence and our clinical experience.

Of the 92 studies, 35 provided results on various pharmacologic interventions to include randomized controlled trials (n = 11), meta-analyses (n = 8), reviews or guidelines (n = 4), and other types of study designs, eg, pilot or open-label studies (n = 9); 3 focused on safety outcomes. Of the 57 studies that evaluated nonpharmacologic interventions, most were randomized controlled trials (n = 26), followed by meta-analyses (n = 9) and nonrandomized pilot studies (n = 11); 11 used other types of designs (eg, crossover studies). Osteoarthritis was the target pain condition in 50 studies, 29 enrolled individuals with persistent pain attributable to a noncancer cause, 7 focused on neuropathic pain disorders, and the remaining 6 enrolled older patients with other pain problems (eg, back pain).

Barriers to Managing Pain in Later Life

Barriers to managing persistent pain specific to geriatric populations include age-related physiologic changes resulting in altered drug absorption and decreased renal excretion; sensory and cognitive impairments; polypharmacy; and multimorbidity, particularly involving chronic conditions such as cognitive impairment, gait disorders, and kidney, lung, and cardiovascular disease.¹⁸ Other barriers include a limited evidence base to guide management of pain in the older adult,¹⁸ physician concerns about the potential for treatment-related harm,¹⁹ as well as older adults' beliefs about pain and pain treatments.²⁰ Additional attitudinal, access, and system-level barriers have been identified that also contribute to undertreated pain in vulnerable populations, including the elderly.²¹

This patient presents with mild cognitive impairment and significant deficits in executive functioning, the latter suggested by her poor performance on the MoCA and clinical history. Executive dysfunction is a term that encompasses a broad range of regulatory behaviors directed by the frontal lobe, including planning, organizing, problem-solving, and decision making.²² As described below, even milder forms of cognitive impairment that include executive dysfunction can be a barrier to managing pain.

Specific Management Approaches

Considering the complexity of managing the care of older patients with persistent pain, these individuals are most likely to benefit from a multidisciplinary team, including a geriatrician, rheumatologist, physical medicine and rehabilitation physician, physical and occupational therapists, and a psychiatrist or psychologist when appropriate. Two guidelines and several consensus statements provide useful information regarding the assessment and management of pain in later life.^{13,23-26} There is broad consensus around the need to intervene aggressively using a multimodal approach that includes both pharmacologic and

nonpharmacologic treatments. This approach is supported by the fact that pain relief constitutes one of the most commonly endorsed goals of older adults.²⁷

Collaborative care approaches have been found to be effective. One randomized clinical trial found that a collaborative multi-component intervention that included physician and patient education, activation, and symptom monitoring in targeted primary care patients with persistent pain was associated with significant improvement in pain-related disability, pain intensity, and depressive symptoms scores during a 12-month period.²⁸

Frequently prescribed or recommended pharmacologic, non-pharmacologic, and rehabilitative approaches for managing pain in older adults are presented below. Box 1 and Box 2 summarize key aspects of the general approach to managing the care of older patients with persistent pain and highlight important considerations regarding its management. A review of interventional approaches for persistent pain in older adults is beyond the scope of this review but has been presented elsewhere.¹³

Pharmacologic Approaches

Mrs L: I am taking a lot of pain medication. If I miss a dose, I really start feeling the pain. When you walk around after taking medication that has morphine in it (or is stronger than morphine), you feel like a zombie.

Dr O: I tried to adjust her pain regimen earlier this year. Whether real or perceived, she had significant side effects. Her daughters and caregivers report that when she is on a number of pain medications, her cognitive function plummets; she is far less functional.

Multiple failed attempts to treat an older patient's pain in the past complicate future treatment choices. Physicians and patients must guard against an attitude of therapeutic nihilism, ie, the conviction that further treatments are not likely to yield benefit. In this case, Dr O appears committed and earnest in trying to identify a regimen that will reduce Mrs L's pain, even if that involves persuading her to revisit medications that did not help in the past. The hesitation to revisit or try different medications in this case appears to be coming from Mrs L, who has been disappointed by the results of previous attempts and finds it difficult to believe that meaningful pain relief is achievable. Negative treatment expectations—which often occur as a consequence of multiple failed analgesic trials in the past—have been shown to significantly reduce analgesic efficacy in experimental studies.^{29,30} Thus, negative beliefs that patients maintain about the likelihood of future therapeutic success may serve as a target for intervention efforts.^{29,30}

The challenge for Dr O is how to instill in this patient a hopeful and expectant mind-set justified by an adequate evidence base, without minimizing her pain or the realistic difficulty of addressing her pain. Strategies that Dr O can use to counter Mrs L's negative treatment expectations include (1) remaining readily available to respond to questions and concerns with each intervention, (2) providing an effective backup or “rescue” pain medication during each new analgesic trial, and (3) taking the patient's reports of pain seriously, while at the same time refraining from promises about the results of treatment. Dr O can also make clear that she will not abandon her patient, emotionally or otherwise.

Linking potential treatment benefits with an important patient goal (eg, increased ability to perform ADL because of reductions in pain) may also prove helpful. Last, recommending the use of nonpharmacologic treatments that emphasize a positive attitude, for example by encouraging a patient to reconnect with longstanding artistic or religious interests, may also help to neutralize the patient's feeling of hopelessness.^{31,32}

Table 1 shows that many commonly administered analgesic medications can reduce pain.^{13,25,26,33-52} There are currently no specific dosing guidelines for older patients. Given that older age is associated with greater incidence of treatment-related adverse effects,²⁶ we recommend starting at the lowest possible dose and titrating up based on tolerability and efficacy. This does not mean that physicians should “start low and stay low,” which contributes to potential undertreatment.⁵³ Table 1 also provides information about recommended starting doses and frequency of administration.

Because of its favorable safety profile, acetaminophen/paracetamol remains a first-line therapy for older adults with mild-to-moderate pain.^{13,26} Although the overall safety profile of the medication is excellent,²⁶ acetaminophen toxicity remains the leading cause of acute liver failure in the United States.³⁵ Given that acetaminophen is present in more than 600 over-the-counter and prescription products aimed at (and heavily advertised commercially for) treating conditions such as pain, fever, and the aches and pains associated with colds and flu, it is not surprising that unintentional over-dose is the leading cause of acetaminophen-induced hepatotoxicity.⁵⁴ In addition, both geriatric pain management guidelines^{13,26} recommend that oral nonsteroidal anti-inflammatory drugs (NSAIDs) be used with caution and for the shortest time possible, given their significant cardiovascular, gastrointestinal, and renal risks (Table 1). A trial of an opioid, ideally prescribed by a single physician for continuity purposes, is reasonable in the older patient with pain that has not responded to other treatments or when significant pain-related functional impairments are present despite treatment. Risks associated with opioid use need to be weighed against the deleterious consequences of untreated or partially treated pain, which include negative emotional states, functional impairment, and decreased physical functioning.⁵⁵⁻⁵⁷ A careful surveillance plan is strongly recommended, however, to determine whether treatment goals are being met. If the goals are not met, the medication should be tapered and discontinued.^{13,26}

Although the short-term efficacy of opioids has been established,⁴³ data supporting their long-term use are lacking. An emerging body of evidence has documented that opioid therapy for chronic noncancer pain in older adults is associated with significant risks, including falls and fall-related injuries, hospitalization, and all-cause mortality.⁵⁸⁻⁶¹ A recent study evaluating Medicare beneficiaries found that opioid prescribing by multiple physicians is common and associated with higher rates of hospital admissions related to opioid use.⁶² Given these findings, educating older patients about the risks of obtaining opioid prescriptions from multiple physicians is prudent.⁶²

Individual use of opioids has increased dramatically during the past 15 years in all age groups⁶³ and has been associated with increases in fatal overdoses, drug diversion, and opioid abuse or misuse.^{64,65} Efforts to reduce risks from opioids in older patients with

persistent pain include the use of screening tools, eg, the SOAPP (Screener and Opioid Assessment for People with Pain), that can help physicians assess risk for the likelihood of patient misuse or abuse of opioids, as well as guide decisions about the extent of monitoring needed if a trial of opioids is undertaken.⁶⁶ Such monitoring might extend to biological testing, eg, urine toxicology screens. Prior to prescribing opioid analgesics to older patients, physicians should be satisfied with arrangements for safe storage of the medication. As a rule, prescription of opioids for older patients with cognitive impairment should not be undertaken unless the administration of medication can be supervised by a responsible third party. Efforts to mitigate these risks at the system level include the development and implementation of prescription drug monitoring programs, ie, electronic databases that collect and distribute data on controlled substance prescribing and that are now operational in 48 states.⁶⁷

In the case of Mrs L, the treatment of mood symptoms and the management of chronic pain are deeply interrelated. Dual-action antidepressants, such as the serotonin-norepinephrine reuptake inhibitors venlafaxine and duloxetine, provide a broad spectrum of neurotransmitter enhancement at moderate to high doses and for this reason are thought to have analgesic effects superior to those of traditional selective serotonin reuptake inhibitors.⁶⁸ Tricyclic antidepressants have also been used to target both depression and pain and may additionally aid in sleep induction.⁶⁹ However, anticholinergic adverse effects frequently limit their use in older patients.^{13,26} Reduction or remission of depression might favorably influence motivation to socialize or engage in physical therapy and other non-pharmacologic pain treatments.

Last, despite the favorable effect sizes for most medications listed in Table 1, important limitations of the evidence include the short-term nature of the studies (most were 12 weeks or less) and enrollment of “young-old” participants (ie, persons in their 60s or 70s) lacking significant comorbidity. The long-term safety and efficacy of frequently prescribed analgesic medications among older adults remain to be determined.

Figure 1 shows 2 treatment algorithms for older patients with persistent pain who are not currently receiving pharmacologic treatment (one for those with nociceptive pain and the other for those with neuropathic pain.) Although they have not been tested in formal evaluation studies, these approaches represent the collective clinical experience of the authors and are consonant with guidelines for the treatment of persistent pain in older adults^{13,26} and for adults with neuropathic pain.⁷⁰ For example, for nociceptive pain, as experienced by the majority of older patients with osteoarthritis, a stepwise approach is recommended, starting with acetaminophen and, if treatments goals are not met, attempting trials of topical therapies, tramadol, or both. A trial of an opioid therapy is appropriate for older patients who do not respond to first-line therapies and for those who continue to experience significant functional impairments due to pain. Oral NSAIDs should be used with caution as a long-term therapy. Regardless of pain etiology, the use of medication combinations (in which each analgesic works by a different mechanism) is recommended because of enhanced analgesic effectiveness, often with less toxicity than is seen with use of a single agent at higher doses.^{26,71,72} In the present case, Mrs L is already using long- and short-acting opioids, an anticonvulsant, and an antidepressant; she is also using a topical

NSAID on an as-needed basis. Despite these interventions, she reports poorly controlled pain and associated functional impairments. Figure 2 provides an approach to decision making for such patients. Assessing adherence to medication(s), development of toxicity, and achievement of therapeutic goals are key concepts in medication monitoring and adjustment and are particularly salient for older patients with persistent pain.

It is important to note that analgesic adverse effects occur frequently in older patients, whether the individual is receiving a first prescription or a change in medication dose or frequency of administration. Moreover, adverse effects increase in the setting of multimorbidity, polypharmacy, and physiologic vulnerability¹⁸ and often lead patients to stop taking their pain medications altogether.^{46,71} After initiating a new (or making a change in) analgesic therapy, careful surveillance in the form of follow-up telephone calls or e-mail is strongly recommended throughout the initiation and titration phases of treatment^{13,26} to address adverse effects and decrease the risk of treatment discontinuation.⁴⁶ The period of surveillance will vary based on both medication and patient factors as described below. Aside from obvious toxicity or intolerance, no single algorithm currently exists to determine how much time physicians should allot before determining that a given analgesic medication is effective. Factors important to consider include the properties of the drug (eg, speed of onset of action, half-life, degree of protein-binding), individual patient characteristics (eg, severity and duration of pain, comorbidities that might predispose the patient to drug toxicity, potential for effect-enhancing or effect-dampening interactions with other analgesics taken simultaneously, protein binding capacity), and treatment goals (eg, pain reduction, improved mood, enhanced mobility). For example, the effects of oral NSAIDs and antidepressants typically require the establishment of minimum serum levels, a process consuming variable lengths of time, in contrast to some opioids that might produce pain relief more rapidly. Also, patients with more chronic or intractable pain should be given drug trials of longer duration to avoid the premature abandonment of potentially helpful agents.

Nonpharmacologic Approaches

Mrs L: I've tried everything, including physical therapy and acupuncture, but they just have not been helpful. If I distract myself by reading or shopping, that seems to help some.

Dr O: I definitely think about nonpharmacologic approaches in these patients. I have tried a number of times, without success, to get her to contact the local integrative medicine clinic to learn nonpharmacologic techniques that may help her better manage pain.

Interest in the role of nonpharmacologic approaches for managing pain in older adults is increasing.⁷³ Reasons for this interest include patient and physician concerns about the potential for drug-related adverse events and physician concerns about drug-drug interactions in the setting of polypharmacy.¹⁸ Many nonpharmacologic approaches involve cognitive techniques (eg, distraction), behavioral techniques (eg, goal setting, exercise), or both, that constitute well-established methods for treating pain.²⁵ Existing evidence suggests that these therapies are safe, can reduce pain, and in many cases improve functioning (Table 2).^{13,17,25,26,74-82} However, almost all studies of nonpharmacologic interventions conducted to date have been short-term (less than 6 months). The long-term efficacy of

nonpharmacologic interventions and the ability of older adults to sustain their use over time remain inadequately determined. However, even temporary relief may offer an opportunity for development of positive expectations and commitments that can be reinforced by the physician.

Mrs L's pain treatment regimen (like that of many older patients) consists predominantly, if not exclusively, of pharmacotherapies. At the time of her visit to Dr O, she is taking 3 scheduled and 2 as-needed pain medications. Dr O's focus on trying to engage Mrs L in the use of nonpharmacologic approaches is clearly appropriate. Communicating to older patients that using nondrug as well as drug therapies is the standard of care can be productive, particularly with individuals reluctant to engage in nonpharmacologic treatments. Recommending a specific nonpharmacologic modality will depend on its availability and affordability (eg, Medicare does not cover many of the approaches listed in Table 2), patient preferences, and the physician's ability to accurately describe its benefits and risks. Because there are no head-to-head comparisons evaluating the nonpharmacologic approaches shown in Table 2, recommending a modality that is accessible and affordable is prudent. Given Mrs L's level of functional deficits and goal of improving her ability to toilet independently, directing her to a movement-based therapy could prove rewarding.

Motivating the older patient with comorbid pain and depression to engage in a particular treatment is often difficult, particularly if the patient holds out little hope of future benefit. Although factors influencing the motivational level of any individual patient are complex, certain factors, if addressed, may help to improve treatment outcomes. For example, when discussing a management plan, the physician could explain the benefits of the recommended intervention(s), reemphasizing the benefits at each subsequent visit. Similarly, the physician can reinforce patient successes at each visit. The management program can be tailored to the individual's preferences and abilities; preferably, the patient has identified aspects of the program that are most desirable, realistic, and feasible, thus increasing likelihood of adherence. To motivate patients to adhere to a management program, the environment in which the older patient engages in a therapeutic activity should be appropriate and accessible. To reinforce treatment initiation and maintenance, the physician can leverage social supports in the form of family members, home attendants, and community-based agencies.

In her interview Dr O emphasized Mrs L's executive function deficits as a challenge in her care. Mrs L's executive dysfunction represents one partial explanation for the failure of some prior nondrug interventions, most of which required substantial levels of cognitive effort and motivation. Managing pain by redirecting one's attention, suppressing ruminative thoughts about pain and countering feelings of hopelessness, or even exercising requires an ability to self-regulate, essentially an executive function.⁸³ Deficits in executive functioning are therefore likely to limit an individual's ability to engage in behavioral techniques, such as distraction or redirection, that could help to moderate pain.

Problem-solving therapy⁸⁴ is a form of cognitive-behavioral therapy that teaches individuals how to address and solve problems encountered in everyday life and improves outcomes among older adults with comorbid arthritis and depression⁸⁵ as well as those with

depression and executive dysfunction.⁸⁶ Problem-solving therapy may prove especially effective in the treatment of persistent pain, by redirecting cognitive focus away from the pain.⁸⁷ Problem-solving therapy appears to hold particular promise for older patients, who, like Mrs L, have the “triad” of persistent pain, depression, and executive dysfunction.

Because Mrs L has acknowledged the benefits of distraction as a way of managing her pain, efforts to encourage her engagement in pleasurable activities (eg, reading, listening to music, shopping for clothes) are indicated. Educating her paid and family caregivers to reinforce and support her engagement in these activities is indicated.

Dr O also identified social isolation as an important problem for Mrs L. Reinforcing the importance of socialization as a pain management technique to both the patient and her caregivers also seems promising.⁸⁸ This recommendation could take the form of encouraging more frequent communication with her daughters and grandchildren by way of telephone or Skype.⁸⁹ Dr O could also search the Eldercare Locator,⁹⁰ which provides information about local social support services for older adults to find programs (eg, Internet chat groups for seniors⁹¹) that may provide benefit. Last, encouraging participation in group-based activities (eg, chair yoga, music appreciation classes) at a senior center or other agency might help to reduce her social isolation, pain, and functional impairment.⁹²

Rehabilitative Approaches

Mrs L: *My balance is poor, I can take a few steps and then all of a sudden my leg will drag.*

Dr O: *Her walking is poor; she is at high risk for a recurrent fall and associated injury.*

Addressing function and fall risk is critically important for all older patients, particularly for those with persistent pain.⁹³ Rehabilitative therapies, including physical therapy and occupational therapy, can help Mrs L maintain and possibly enhance her current functional status. Geriatric pain management guidelines^{13,25} recommend that all older patients with persistent pain adopt physical activity regimens that include strengthening, flexibility, balance, and endurance exercises.⁹⁴⁻⁹⁶ Given Mrs L's significant mobility impairments, she likely qualifies for home-based physical and occupational therapy. Physical and occupational therapists can help patients like Mrs L to implement individualized home-based treatment programs.⁹⁷ Although Mrs L stated that prior physical therapy courses were not helpful, home-based⁹⁸ services directed at improving her safety and mobility could potentially facilitate involvement in out-of-home activities; these services might indirectly yield dividends such as more time spent socializing with family and friends. In support of this approach, a recent clinical review highlights the critical role physical therapists can play in developing “function-enhancing interventions” in older adults with mobility limitations.⁹⁹

In addition, physical therapists can conduct an inventory of existing equipment (eg, does the patient have a properly functioning walker?) and make recommendations about new assistive/mobility devices.¹⁰⁰ Occupational therapists can directly observe a patient's ADL functioning in the home and make recommendations about assistive devices that may help to improve ADL functioning. Both paid and family caregivers, especially of older adults with cognitive impairment,¹⁰¹ can reinforce patients' ongoing use of rehabilitative techniques and

should be engaged and empowered to do so.¹⁰¹ Last, physical and occupational therapists can also train caregivers to reinforce concepts learned during treatment sessions, including coaching on fall risk, safety, body mechanics, and pacing.

Pain and the Patient-Physician Relationship

Mrs L: The doctors I like recognize I have a problem that is not going to go away and don't sugar coat things.

Dr O: I view my practice as a resource for Mrs L, as a place where she can call for help and get reassurance when needed, and receive guidance in how to take her pain medications so she does not end up back in the hospital.

The patient-physician relationship lies at the center of treatment for patients with persistent pain. Therapeutic alliance, defined most simply as a constructive collaboration between the patient and physician,¹⁰² has been impressively enduring in the case of Mrs L and Dr O, surviving the failure of prior attempts to alleviate Mrs L's pain. Although few studies have addressed the specific contribution of the therapeutic alliance to treatment outcomes in patients with pain,¹⁰³ a positive patient-physician relationship has been associated with improved treatment outcomes among patients receiving general¹⁰⁴ and rehabilitative¹⁰⁵ medical care. Devoting the time to establish mutually agreed-on treatment goals is an important step in building a therapeutic alliance.¹⁰⁶ Other core elements of the therapeutic alliance include (1) setting realistic expectations about what can and cannot be accomplished, taking into account such immutable factors as patient age, etiology, and duration of the pain; (2) availability of the physician for advice, reassurance, and support during pain flares; (3) tenacity and commitment on the part of both physician and patient; (4) mutual respect; and (5) a reciprocal bond generated by both parties' having an emotional investment in the outcomes of treatment.¹⁰⁶⁻¹⁰⁹

Conclusions

Formulating an effective treatment plan for older patients with persistent pain requires a clear understanding of their comorbidities, cognitive and functional status, treatment goals and expectations, and resources, including both social and family supports (Box 1). A multimodal approach that includes both pharmacologic and nonpharmacologic interventions is recommended and supported by the literature. The use of 2 or more analgesic medications with complementary mechanisms of action, as opposed to higher doses of a single pain medication, may lead to greater relief of pain with less toxicity (Box 2). Referring patients for specific nonpharmacologic modalities that are accessible and affordable is recommended. Although prior rehabilitation interventions were not successful in relieving Mrs L's pain, a fresh approach that involves seeking out home-based physical therapy and occupational therapy services, encouraging the use of nonpharmacologic approaches, and engaging paid and family caregivers in these efforts should be presented to the patient as a comprehensive new trial. Reinforcement of the regimen based on methods of managing executive dysfunction, including cues for steps in treatment; rehearsing choices, planning, and sequencing; encouraging self-monitoring; and problem-solving with the physician (and family members) may yield additional benefits with respect to relief of pain that the patient

expressly desires. In addition, the physician should convey a conviction that the efforts of the patient herself matter, and that the energy she invests in active participation in treatment—for example, in rehabilitation exercises—will be rewarded, if not in guaranteed reductions in her pain level, then at least in better functioning or improvements in other important outcomes. Last, cultivating an enduring, trusting therapeutic alliance in which mutual treatment goals are established may be one of the most rewarding aspects of delivering (for the physician) and receiving (for the older patient) longitudinal pain care.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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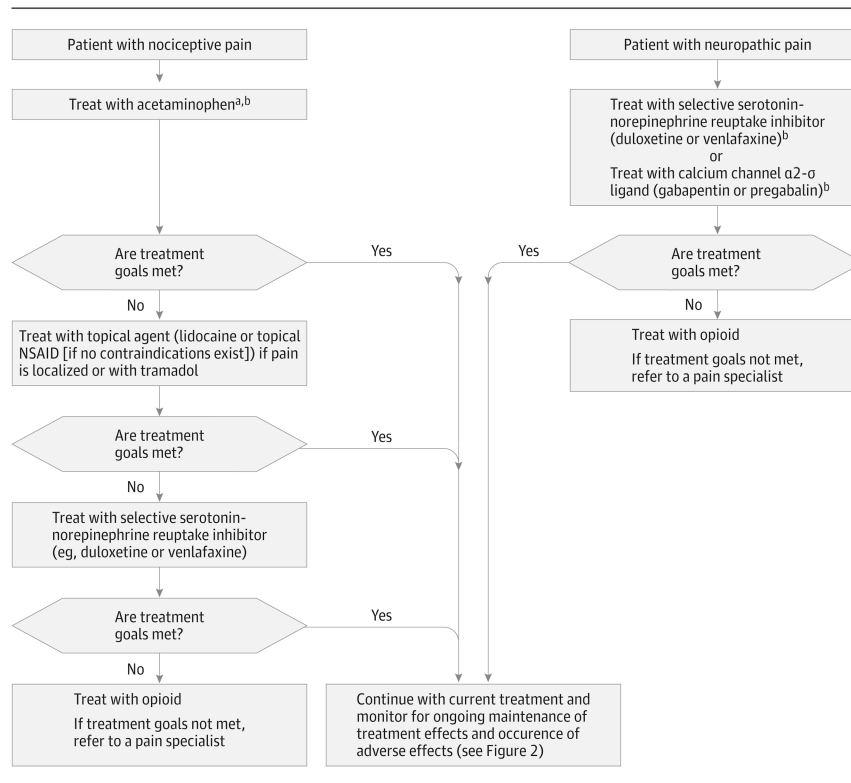
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Box 1**Key Points Regarding Overall Approach to Management of Persistent Pain in the Older Adult**

1. Determine patient's comorbidities, cognitive and functional status, treatment goals and expectations, and social and family supports prior to initiating treatment
2. Intervene using a multimodal approach, including pharmacologic and nonpharmacologic treatments as well as physical and occupational rehabilitation modalities
3. Develop and enrich therapeutic alliance between patient and physician (physician must respond promptly and reliably to patient calls and provide backup coverage when away; consider all patient input seriously; encourage hope without overpromising therapeutic success)
4. Be willing to revisit previously used pharmacologic and nonpharmacologic treatment modalities with indicated modifications
5. Involve and engage caregivers and seek out other resources (eg, community-based programs) that can help to reinforce treatment adherence and maintain treatment gains
6. Reinforce positive outcomes at each visit

Box 2**Key Points Regarding Pharmacologic and Nonpharmacologic Approaches**

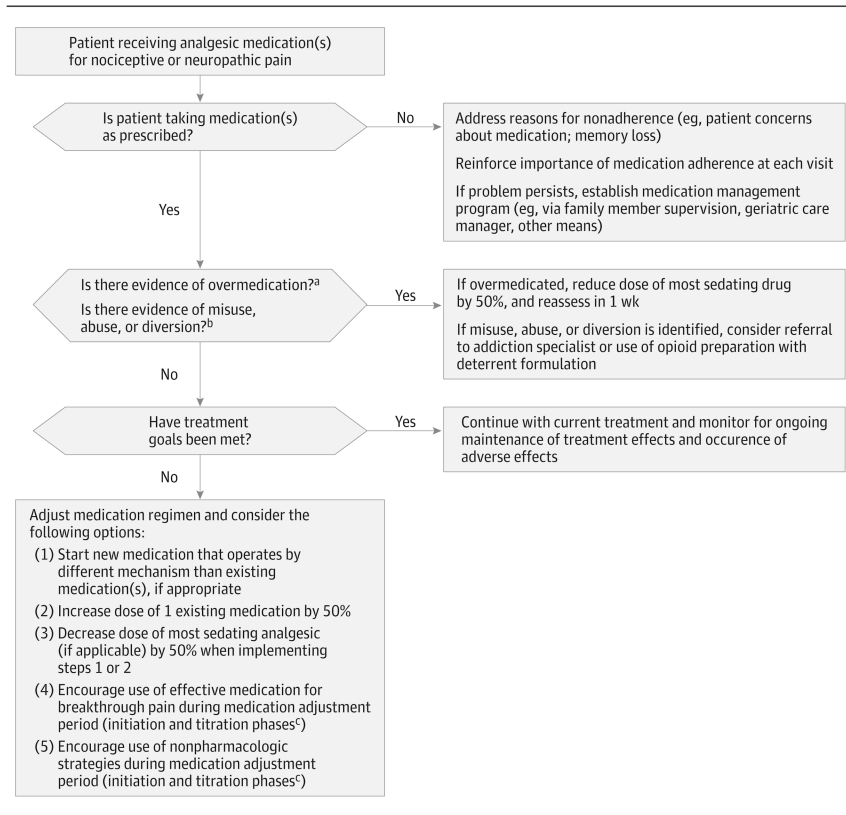
1. Link potential treatment benefits with important patient goals (eg, increased ability to perform activities of daily living)
2. Use medication combinations (in which each analgesic works by a different mechanism) to enhance analgesic effectiveness
3. Acetaminophen remains first-line pharmacologic treatment for older adults with mild-to-moderate pain
4. Avoid long-term use of oral nonsteroidal anti-inflammatory drugs, given their significant cardiovascular, gastrointestinal, and renal risks
5. Trial of opioid is appropriate for patients not responsive to first-line therapies and who continue to experience significant functional impairment due to pain
6. Consider serotonin-norepinephrine reuptake inhibitors or selective serotonin reuptake inhibitors in patients with comorbid depression and pain
7. Implement surveillance plan (ie, efficacy, tolerability, adherence) with each new treatment
8. Physical activity (including physical therapy, exercise, or other movement-based programs such as tai chi) constitutes a core component of managing persistent pain in older patients
9. Educate older patients about safety and efficacy of cognitive behavioral and movement-based therapies and identify local practitioners or agencies that provide them
10. Determine whether treatment goals are being met; if goals are not met, medication should be tapered and discontinued, physical and occupational therapy prescription modified, or both



^a Recommend use of oral nonsteroidal anti-inflammatory drugs (NSAIDs) in appropriate patients for selected situations (eg, acute-on-chronic pain flare, brief rehabilitation period, acute injury).

^b Consider combination therapy when possible (eg, acetaminophen + serotonin-norepinephrine reuptake inhibitor) for the treatment of nociceptive and neuropathic pain.

Figure 1. Treatment Algorithms for Nociceptive and Neuropathic Pain Disorders in Older Adults



^a Obtain both patient and proxy data whenever possible: assess for history and physical examination evidence of gait disturbance, falls or near falls, mental status changes (confusion, lethargy, mental slowing, attention problems); change in gastrointestinal or genitourinary function: assess for other adverse effects based on knowledge of adverse-effect profile of prescribed medication(s).

^b Recommend routine screening for misuse/abuse behaviors, periodic urine testing; consider treatment agreements. Review data from prescription drug monitoring programs regularly in states that have them.

^c Initiation indicates selection of starting dose and frequency of administration; titration indicates adjustment of medication dose to achieve optimal level of analgesia (see Table 1).

Figure 2. Approach for Monitoring Pain Management and Adjusting Medication for Older Adults Already Taking Analgesic Medications

Table 1

Efficacy and Safety Data and Guideline Recommendations Regarding Frequently Prescribed Pharmacologic Treatments for Persistent Pain in Older Adults

Treatment	Efficacy	Level of Evidence ^a	Safety Issues	Guideline Recommendations	Recommended Starting Dose(s) ^b
Pain Medications					
Acetaminophen/paracetamol	Reduces pain relative to placebo (effect size, 0.21 [95% CI, 0.02-0.41]) ³³ ; inferior when compared with oral NSAIDs for pain reduction, stiffness, and physical functioning ³⁴	Ia	Acetaminophen toxicity remains leading cause of acute liver failure in United States; unintentional overdose is leading cause of acetaminophen-induced hepatotoxicity ³⁵	Recommended as first-line therapy, given excellent overall safety profile ^{13,25,26}	325 mg every 4 h; maximum daily dose, 3250 mg
Oral NSAIDs	Reduce pain (effect size, 0.32 [95% CI, 0.24-0.39]) and functional disability (effect size, 0.29 [95% CI, 0.18-0.40]) relative to placebo ³⁶	Ia	Established gastrointestinal, renal, and cardiovascular toxicity; gastrointestinal bleeding risk increases with age; patients taking long-term therapy should be monitored closely for gastrointestinal, renal, and cardiovascular adverse effects ^{13,26}	Should be used with caution and for the shortest time possible, given related risks; use only when other therapies have failed or continuing therapeutic goals not met ^{13,25,26}	Naproxen sodium: 220 mg every 12 h Ibuprofen: 200 mg every 8 h Diclofenac extended release: 100 mg every 12 h Celecoxib: 100 mg every 12 h
Topical NSAIDs	Reduce pain (effect size, 0.41 [95% CI, 0.14-0.68]); improve physical function (effect size, 0.44 [95% CI, 0.16-0.71]) and stiffness (effect size, 0.43 [95% CI, 0.15-0.70]) relative to placebo ³⁷ ; equivalent to oral NSAIDs in terms of pain reduction at 1 y ³⁸	Ib	Generally well tolerated, given lower systemic absorption; however, safety of topical NSAIDs in patients taking anticoagulation therapy or with renal impairment remains unknown ⁹	Consider as alternative to oral NSAIDs, particularly if pain is localized ^{13,25,26}	Volataren gel/diclofenac gel: apply 4 g to affected area every 6 h; maximum daily dose, 32 g
Tramadol	Reduces pain relative to placebo (visual analog score at day 7, $P = .002$; day 14, $P = .01$). At day 14, mean decrease in pain intensity of 2.43 cm in	Ib	Adverse effects include constipation, nausea/vomiting, dizziness, headache, somnolence ⁴¹ . Potential drug interactions and increased risk of	Monitor for adverse effects ^{25,26}	50 mg every night, then 25-50 mg immediate release every 6 h; maximum daily dose, 400 mg

Treatment	Efficacy	Level of Evidence ^d	Safety Issues	Guideline Recommendations	Recommended Starting Dose(s) ^b
	tramadol group compared with 1.55 cm in placebo group (95% CI, 0.98-2.04 cm). No difference between groups for functional index score tramadol group compared with 1.55 cm in placebo group (95% CI, 0.98-2.04 cm). No difference between groups for functional index score tramadol group compared with 1.55 cm in placebo group (95% CI, 0.98-2.04 cm). No difference between groups for functional index score tramadol group compared with 1.55 cm in placebo group (95% CI, 0.98-2.04 cm). No difference between groups for functional index score tramadol group compared with 1.55 cm in placebo group (95% CI, 0.98-2.04 cm). No difference between groups for functional index score tramadol group compared with 1.55 cm in placebo group (95% CI, 0.98-2.04 cm). No difference between groups for functional index score		Established risk of fall or fracture ^{44,45} ; increased risk of hospitalization relative to nonselective NSAIDs ⁴⁵ ; constipation and other adverse effects (eg, lethargy, nausea/vomiting) constitute major causes of treatment failure ⁴⁶	Consider for use in older patients with moderate-to-severe pain or with substantial impairments in physical functioning or quality of life that have failed other treatments ^{13,25,26}	Oxycodone: 2.5 mg every night, then 2.5-5.0 mg every 4-6 h Hydrocodone: 2.5 mg every night, then 2.5-5.0 mg every 4-6 h
Opioids	Reduce pain (effect size, 0.56; $P < .001$) and functional disability (effect size, 0.43; $P < .002$) relative to placebo ⁴³	Ia			
Adjuvant Medications					
Tricyclic antidepressants	Amitriptyline reduces pain relative to placebo in patients with diabetic neuropathy (67% of patients reported moderate or greater pain relief) ⁴⁷	Ib	Adverse effects (particularly anticholinergic and noradrenergic) limit use; QTc prolongation risk requires ECG monitoring; monitoring serum levels is recommended given substantial potential for toxicity at higher doses ^{13,26}	Tertiary tricyclics (eg, amitriptyline, doxepin) should be avoided because of high incidence of adverse effects ^{25,26}	Nortriptyline: 25 mg every night to start; maximum daily dose, 200 mg (if comorbid depression is present and depending on serum level)
Anticonvulsants	Pregabalin and gabapentin both reduce pain relative to placebo among patients with diabetic neuropathy. 25% average pain reduction for patients taking pregabalin, ⁴⁸ whereas 52% of patients treated with gabapentin reported moderate or greater pain relief ⁴⁷	Ib	Adverse effect profile can limit use in older patients (eg, sedation, dizziness, peripheral edema); dose adjustment of gabapentin and pregabalin necessary in those with renal impairment ^{13,26,49}	Recommended for use in older patients with neuropathic pain ^{13,25,26}	Pregabalin: 50 mg every night, then 50 mg every 8 h; maximum daily dose, 300 mg Gabapentin: 100 mg every night, then 100 mg every 8 h; maximum daily dose, 3600 mg
Serotonin-norepinephrine reuptake inhibitors	Duloxetine reduces diabetic neuropathic pain (50% reduction	Ib	Generally well tolerated, but adverse effects include	Recommended for use in older patients with neuropathic pain ^{13,25,26}	Duloxetine: 20 mg daily; maximum daily dose, 60 mg

Treatment	Efficacy	Level of Evidence ^d	Safety Issues	Guideline Recommendations	Recommended Starting Dose(s) ^b
	in average pain score achieved by duloxetine-treated vs 26% of placebo-treated patients) ⁵⁰ ; duloxetine also superior to placebo for pain reduction and improved physical functioning in patients with knee osteoarthritis ⁵¹	NA	hyponatremia, dizziness, abdominal pain, and nausea ^{13,26}		Venlafaxine: 37.5 mg daily; maximum daily dose, 300 mg (if comorbid depression is present)
Serotonin reuptake inhibitors	Did not identify any studies that met age criterion	NA	NA	Not recommended for use as analgesic ¹³	NA
Topical lidocaine	Among patients with osteoarthritis of the knee, at least 50% improvement in symptom severity reported by 40% for pain, by 40% for stiffness, and by 38% for increased physical functioning ⁵²	IIb	Generally well tolerated; most commonly reported adverse effect is headache ⁵²	Consider for use in older patients with localized neuropathic pain ^{13,25,26}	Apply patch daily to affected area for 12-h period

Abbreviations: ECG, electrocardiography; NA, not applicable; NSAID, nonsteroidal anti-inflammatory drug; VAS, visual analog scale.

^aLevel of evidence ratings: Ia, evidence from meta-analysis of randomized controlled trials; Ib, evidence from at least 1 randomized controlled trial; IIa, evidence from at least 1 controlled study without randomization; IIb, evidence from at least 1 type of quasi-experimental study; II, evidence from nonexperimental studies, such as comparative studies, correlation studies, and case-control studies.¹⁷

^bDosing recommendations based on American Geriatrics Society clinical guideline²⁶ and the author's clinical experience. Maximal ceiling doses are reported when present.

Table 2
Efficacy and Safety Data and Guideline Recommendations Regarding Common
Nonpharmacologic Treatments for Persistent Pain in Older Adults

Treatment	Efficacy	Level of Evidence ^a	Safety Issues	Guideline Recommendations
General nonpharmacologic approaches				
Cognitive-behavioral therapy	Reduces pain (effect size, 0.47; $P < .01$) and improves physical functioning (effect size, 0.15, $P < .05$) ⁷⁴	Ib	Did not report on any safety issues ⁷⁴	Recommended for use by older patients, provided therapy is delivered by a professional ^{13,25,26}
Acupuncture	Reduces pain (standardized mean difference, -0.35 [95% CI, -0.14 to -0.55]) and functional disability (-0.35 [95% CI, -0.15 to -0.56]) relative to sham controls ⁷⁵	Ia	No serious adverse events reported; minor adverse events include bruising and bleeding at needle insertion sites ⁷⁵	Consider use in older patients as an adjunctive therapy ^{13,25,26}
Mindfulness meditation	Reduces pain and disability and improved psychological function among patients with chronic back pain but not relative to attention control group ⁷⁶	Ib	No adverse events reported ⁷⁶	Limited/weak evidence supporting use ^{13,25,26}
Massage	Reduces pain (effect size, 0.96) and stiffness (effect size, 0.31) and improves functioning (effect size, 0.74) relative to attention control group in patients with osteoarthritis ⁷⁷	Ib	No serious adverse events reported ⁷⁷	Consider use in older patients as an adjunctive therapy ^{13,25,26}
Self-management education programs	Reduces pain (effect size, -0.06 [95% CI, -0.02 to -0.10]) and improves functioning (-0.06 [95% CI, -0.02 to -0.10]) relative to controls in older patients with osteoarthritis ⁷⁸	Ia	No serious adverse events reported ⁷⁸	Recommended that older adults participate in programs by US ^{25,26} (but not British ¹³) guideline
Movement-based approaches				
Exercise	Reduces pain relative to usual care or attention control, effect size range, 0.25 to 2.75 in older patients with osteoarthritis of the knee ⁷⁹ ; improves physical functioning and self efficacy in older patients with osteoarthritis ⁸⁰	Ib	Did not report on safety issues ^{79,80}	Strong recommendation that physical activity program be considered; exercise program should involve strengthening, flexibility, endurance, and balance strategies ^{13,25,26}

Treatment	Efficacy	Level of Evidence ^a	Safety Issues	Guideline Recommendations
Tai chi	Reduces pain (standardized mean difference, -0.86 [95% CI, -1.19 to -0.39]), physical disability (standardized mean difference, -0.86 [95% CI, -1.20 to -0.53]), and joint stiffness (standardized mean difference, -0.53 [95% CI, -0.99 to -0.08]) among patients with osteoarthritis ⁸¹	Ib	No serious adverse events reported; minor adverse events include muscle soreness and increased joint pain ⁸¹	Consider for use in older patients, if delivered appropriately ¹³
Yoga	Reduces pain and improved physical function in pretest vs posttest comparisons ⁸² among older patients with osteoarthritis of diverse joints	III	None reported ⁸²	Consider for use in older patients, if delivered appropriately ¹³

^a Level of evidence ratings: Ia, evidence from meta-analysis of randomized controlled trials; Ib, evidence from at least 1 randomized controlled trial; IIa, evidence from at least 1 controlled study without randomization; IIb, evidence from at least 1 type of quasi-experimental study; II, evidence from nonexperimental studies, such as comparative studies, correlation studies, and case-control studies; and III, evidence from nonexperimental descriptive studies.¹⁷