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Management of chronic pain in older adults

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Chronic pain is one of the most common conditions encountered by healthcare professionals, particularly among older (≥ 65 years) patients.¹ Pain is associated with substantial disability from reduced mobility, avoidance of activity, falls, depression and anxiety, sleep impairment, and isolation.¹⁻³ Its negative effects extend beyond the patient, to disrupt both family and social relationships. Chronic pain poses a significant economic burden on society.¹ Prevalence rates for pain are expected to increase as populations continue to age—by 2035 an estimated one quarter of the population in the European Union will be 65 or older—thereby increasing the public health impact of pain. Healthcare providers, irrespective of specialty, should develop competencies to assess and manage chronic pain in their older patients. In this review we summarize recent evidence on the assessment and management of pain in older patients. Evidence is taken from systematic reviews, meta-analyses, individual trials, and clinical guidelines.

What is chronic pain and how is it caused?

Although no universally accepted definition exists for chronic pain, it is often defined as pain that persists beyond the expected time of healing (typically 12 weeks) and may or may not be associated with an identifiable cause or actual tissue damage.³⁻⁴ Musculoskeletal disorders are common in later life, and increasingly common are painful neuropathies from diabetes, herpes zoster, chemotherapy, and surgery. Other types of pain are also prevalent among older adults, including pain due to cancer as well as cancer treatments.⁵⁻⁶ Pain is also common in the advanced stages of many chronic diseases, including congestive heart failure, end stage renal disease, and chronic obstructive pulmonary disease.⁷ Fur-

thermore, millions of joint repair and replacement surgeries are performed annually, and an important minority of patients undergoing these procedures report chronic pain despite surgery.⁸ Finally, vertebral compression fractures are highly prevalent and cause substantial pain and discomfort, particularly among older women.⁹ Box 1 (see thebmj.com) lists other common diseases where pain is a major symptom.

Who gets it?

Chronic pain in later life is a worldwide problem. In one nationwide survey of older adults ($n=7601$) in the United States, 52.8% reported experiencing bothersome pain in the preceding month.¹⁰ Similar findings have been reported in studies conducted in Europe, Asia, and Australia¹¹⁻¹³ and in both developed and less developed countries.¹⁴ Risk factors include advancing age, female sex, lower socioeconomic status, lower educational level, obesity, tobacco use, history of injury, history of a physically strenuous job, childhood trauma, and depression or anxiety.

Factors predicting poor outcomes (that is, higher pain scores, disability, depression) among people with chronic pain include higher levels of pain severity and disability, longer duration of pain, multiple pain sites, history of anxiety or depression, maladaptive coping strategies (for example, worry, avoidance), and low social support at the time of diagnosis. In one study of older adults ($n=403$) with musculoskeletal pain, three brief items assessed at the initial clinical encounter—degree of interference from pain, pain in multiple body sites, and duration of pain—predicted lack of patient improvement at six months and helped general practitioners predict this outcome above clinical judgment alone.¹⁵ Simple risk stratification approaches like this could help to tailor care.

How are older patients with chronic pain assessed?

A comprehensive pain assessment can increase the likelihood of identifying a specific diagnosis for the pain, guide selection of treatments most likely to benefit the patient, and identify targets for intervention (for example, unrealistic treatment goals) besides pain relief.

History

Chronic pain is more than just a sensory event; it has affective (emotional responses to pain), cognitive (attitudes and beliefs about pain), behavioral (for example, behaviors manifested in response to pain by patients and their family members or caregivers), as well as sensory components (for example, quality, location, temporal pattern). Assessing for the presence and severity of pain captures only a small part of the pain experience. All older patients with chronic pain should undergo a comprehensive pain assessment (box 2 outlines the key elements).

Box 3 lists these and other core elements of the assessment along with sample questions that can be employed during the interview.

SOURCES AND SELECTION CRITERIA

We searched Medline, Embase, and the Cochrane Database of Systematic Reviews using the search terms “chronic pain”, “older adults”, “prevalence”, “diagnosis”, and “treatment”. We specifically focused on identifying and reviewing systematic reviews, meta-analyses, high quality randomized controlled trials, and clinical guidelines published during the past five years whenever possible.

THE BOTTOM LINE

- Chronic pain in later life is a worldwide problem
- All older adults with chronic pain should undergo a comprehensive geriatric pain assessment
- A comprehensive assessment can guide selection of treatments most likely to benefit the patient and identify targets for intervention besides pain relief
- A multimodal approach that includes both drug and non-drug modalities for pain is recommended
- Given the limited reach of cognitive behavioral and exercise approaches to manage pain in later life, patients should be encouraged to engage in and adopt these techniques
- Involve and engage family members and paid caregivers and seek out other resources that can help to reinforce adherence to treatment and maintain gains from treatment

Box 2 | Key elements of a comprehensive pain assessment

- *Administering standardized pain assessment tools*—this can provide additional information above and beyond what is generated by the interview and physical examination. Table 1 (see thebmj.com) includes measures that are for the most part simple, brief, and appropriate for being self administered. The brief pain inventory-short form and the geriatric pain measure are recommended for routine use in practice because they are easy to complete, have been successfully used in studies of older adults, and assess multiple salient dimensions of the pain experience. It is important to employ assessments that older patients can do without difficulty and to use the same tools at each visit to assess for change in a given outcome over time
- *Ascertaining the impact of chronic pain on functioning*—for example, activities of daily living, social functioning, sleep
- *Identifying attitudes and beliefs about pain, as well as treatment goals and expectations*—many older patients endorse beliefs that operate as important barriers to engagement with and adherence to treatment. Older patients' goals may or may not be the same as the healthcare provider's goals. In addition, patients may have unrealistic (for example, expect complete pain relief) or negative (for example, treatments will not help) expectations that can serve as targets for intervention¹⁶
- *Gathering data from family members and paid caregivers*—gathering information from third parties about an older patient's response to pain and the impact it has at home may be essential, particularly when patients cannot provide this information because of difficulties with communication as a consequence of stroke or advanced dementia
- *Identifying resources to include family members, other caregivers, and faith communities, when appropriate*—these can provide emotional or instrumental support and help to reinforce engagement with and adherence to treatment
- *Reviewing comorbidities and drugs*—some chronic conditions might be made worse by starting a particular analgesic agent and some drugs may constitute a contraindication to initiating a specific analgesic trial

Assessing pain in older patients with major cognitive impairment

Patients with limited verbal or cognitive abilities require modified approaches to assessment. A hierarchy of techniques is recommended, the first including an attempt to obtain self report data followed by a search for potential causes of the pain, observing patient behavior (for example, facial expressions, vocalizations, guarding), obtaining proxy data from family members or caregivers who know the patient well and can report on whether changes in behavior or activity are very different from baseline, and conducting an analgesic trial to see whether the behavior resolves with treatment.²³ Several tools for behavioral pain assessment have been developed to assess for pain in non-verbal patients and are reviewed elsewhere.^{19 23}

What is the approach to management?

Management of pain in later life can be complex; problems with both nociceptive and neuropathic pain are common and often coexist. Management is further complicated by age related physiologic changes, which lead to altered drug absorption and decreased renal excretion, sensory and cognitive impairments, polypharmacy, and multimorbidity, particularly chronic conditions such as disorders of gait and balance, and kidney, lung, and cardiovascular disease.¹⁶ Other barriers to management include a limited evidence base to guide decisions, physician concerns about the potential for treatment related harm, as well as older adults' beliefs about pain and treatments for the pain. However, it is important to note that these barriers are not universally present in older adults; an important tenet of geriatric medicine is that chronologic age does not equal biologic age.

Chronic pain in older patients most often occurs in the setting of multiple comorbidities, limiting treatment options. A comprehensive management approach should deal with common sequelae such as depression, isolation, and physical disability, and include both drug and non-drug treatments. Given the complexities of managing most older patients with chronic pain, a multidisciplinary approach that includes physician, nursing, and social work perspectives is strongly recommended.

Social aspects of management

Clinicians are advised to take family responses and dynamics into account when formulating treatment plans. Older patients' chronic pain often affects their close relatives and caregivers.

What drug interventions are available?

Table 2 summarizes current UK and US guideline recommendations,^{2 3} highlights key safety concerns about analgesics, and provides guidance on specific drug treatments for both nociceptive and neuropathic pain disorders. The use of drug combinations often results in enhanced analgesic effectiveness, with lower toxicity than is seen with the use of a single agent at higher doses, and is encouraged.³⁰

Paracetamol

Because of its favourable safety profile, paracetamol (acetaminophen) is the preferred treatment for older patients with mild or moderate pain. In one meta-analysis

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Examination

A physical examination should be conducted, focusing on the musculoskeletal (is there evidence of inflammation?) and neurologic (is there evidence of weakness or neuropathy?) systems. Tackling physical functioning and risk of falls is critically important, given that pain is associated with these outcomes. This part of the assessment should include self report and performance based measures such as gait speed, timed up and go test, balance. The results provide a baseline against which the functional impact of treatment can be evaluated.

Imaging

Diagnostic imaging is often overused and does not indicate better care.²⁰ In one study of Portuguese adults (n=5094) more than half of all respondents with chronic pain reported undergoing a diagnostic imaging procedure in the previous six months.²¹ Such imaging often uncovers incidental findings, leading to more testing, costs, and worry for patients. An additional concern is the low correlation between pathologic findings identified by imaging and the extent to which patients report experiencing pain.²² Many patients with major disease identified by imaging report no pain, whereas others without major disease often report severe pain.²² Diagnostic imaging is appropriate when the history or physical examination identifies abnormalities that suggest a specific diagnosis for the pain. Imaging procedures should also be strongly considered in the presence of "red flags," to include worsening pain in patients with a history of cancer, risk factors for infection (injecting drug use, immunosuppressive therapy), and worrisome constitutional signs or symptoms such as unexplained weight loss, fever, or loss of appetite.

of seven randomized controlled trials comparing paracetamol with placebo, paracetamol (up to 4 g daily) was found to be modestly effective in reducing pain, which decreased on average by 4 points on a scale of 0-100. The number needed to treat ranged from 4 to 16. Paracetamol did not improve physical function or stiffness when compared with placebo.³¹ While it is not associated with significant cardiovascular, renal, or gastrointestinal effects,³ unintentional overdose of paracetamol is an important cause of hepatotoxicity. Patients should be counseled to not exceed the maximum recommended daily dose.

Non-steroidal anti-inflammatory drugs

Oral non-steroidal anti-inflammatory drugs (NSAIDs) have established gastrointestinal, cardiovascular, and renal risks, which increase with age. Oral NSAIDs can be effective in some patients but are safest when used for pain flares (transient increases in pain that typically persist for hours to days). The current evidence base provides little guidance about the NSAID for safest use in this patient population. A network meta-analysis examined the cardiovascular safety of various NSAIDs and found that naproxen was the least harmful compared with other non-selective (for example, ibuprofen) and selective (for example, celecoxib) NSAIDs.³² These data indicate that naproxen is most appropriate (compared with other NSAIDs) for patients with cardiovascular risk factors. Risk of renal and gastrointestinal injury must also be weighed, however, before initiating any trial involving NSAIDs. If a trial of an NSAID is undertaken,

A PATIENT'S PERSPECTIVE

I have lived with chronic back pain for over 30 years. Early on I had surgery on my back that helped for maybe six months, but then the pain returned and has been with me ever since. It has affected my life in many ways: I don't have as much energy as I would like, I can only do housework for short periods before my back starts to hurt, and my kids only know me as a person with chronic back pain. I use different techniques to help me manage it. First off, having a supportive spouse and family is very important. I also find massage, which I get several times a week, to be incredibly helpful. I also go to the gym where I do stretches, walk on the treadmill, and do the exercise bike and elliptical for short periods (five minutes each) before my back starts to bother me. I do take pain medications; I will take ibuprofen for short periods. I also take hydrocodone when the pain is really bad but don't like taking it regularly because my mother had an addiction problem, which is a concern. I would say I have learned to live with the pain and won't let it defeat me.

Sally Smith, New York City

have the patient return to the office within two weeks to ask about treatment benefit and gastrointestinal side effects, check blood pressure, and carry out renal function tests.

Topical NSAIDs represent an alternative to oral NSAIDs, are generally well tolerated, and should be considered, especially for patients with localized pain.

Opioids

Opioids may be considered when an older patient's pain has not responded to other treatments or when major functional impairment persists despite treatment. The short term efficacy of opioid use (≤ 12 weeks) among older adults has been established.³³ In a retrospective cohort study of (n=133) older patients (mean age 82) newly started on an opioid because of pain due to chronic musculoskeletal conditions, reductions in pain were recorded in 66% of participants.³⁴ However, opioids were discontinued in 48% of the participants, mostly as a result of poorly tolerated side effects, including constipation, changes to mental status, and nausea. Given the established risks associated with opioid use,³⁵ the potential negative effects must be weighed against the consequences of untreated or partially treated pain. A recent systematic review found limited evidence in support of long term opioid treatment, and the risk for serious harm increased in line with opioid dose.³⁵ If an opioid trial is undertaken, it is important to closely monitor (that is, biweekly during the initiation and dose titration phase of treatment) whether treatment goals are being met. If not, the drug should be tapered and discontinued.

There is no evidence to support the use of one weak opioid (for example, hydrocodone, codeine) over another when the response to paracetamol or a NSAID is lacking. Selection of a specific opioid depends on the clinician's clinical experience and knowledge, the patient's previous experiences, and availability of the drug in local pharmacies. Strong opioids (for example, morphine, hydrocodone) should not be given to patients who have never used opioids. In terms of initiating a given opioid trial, no special dosing guidelines exist for older patients. Beginning at the lowest possible dose and titrating upwards based on tolerability and efficacy is recommended, given that age is associated

Box 3 | Elements of a comprehensive geriatric pain assessment

Sensory

Please tell me all of the places you experience pain or discomfort. What does it feel like? What words come to mind?

Is your pain or discomfort with you all of the time or does it come and go? How long has it been present? What makes it better, what makes it worse?

Emotional impact

Has pain affected your mood, sense of wellbeing, energy level?

Are you worried about your pain or what may be causing it?

Functional impact

Has pain affected your ability to do everyday activities? To do things you enjoy?

How about relating with others? If so, how?

Sleep

Has pain affected your sleep?

Do you have trouble falling asleep or need to take drugs to help you sleep on account of your pain?

Attitudes and beliefs

Do you have any thoughts or opinions about experiencing pain at this point in your life that you believe would be important for me to know?

Do you have any thoughts or opinions about specific pain treatments that you believe would be important for me to know?

Coping styles

What things do you do to help you cope with your pain? This could be listening to your favorite music, praying, sitting still, or isolating yourself from others

Treatment expectations and goals

What do you think is likely to happen with the treatment I have recommended?

What are the most important things you hope will happen as a result of the treatment?

Resources

Is there anyone at home or in the community that you can turn to for help and support when your pain is really bad?

Table 2 | Guideline recommendations for drug management of chronic pain

Analgesic class	Recommendation*	Safety concerns	Quality of evidence†
Paracetamol (acetaminophen)	Use for mild to moderate pain	Liver toxicity a concern at higher doses, particularly from unintentional overdose	High
Oral NSAIDs	Use for shortest time possible; may be appropriate when other treatments have failed	Selective and non-selective NSAIDs associated with adverse gastrointestinal, renal, and cardiovascular side effects	High
Topical NSAIDs	Use as alternative to oral NSAIDs, particularly when pain is localized	Safety of topical NSAIDs in patients receiving anticoagulation or with renal impairment remains unknown	Moderate
Tramadol	Consider for use in patients who do not respond to paracetamol/NSAIDs	Increased risk of seizures or serotonin syndrome when used with antidepressants; side effect profile similar to that of opioids	Not reported
Opioids	Use for moderate to severe pain or with substantial impairments in functioning or quality of life and when other treatments have been unsuccessful	Side effects limit use (constipation, sedation, nausea)	Low
Tricyclic antidepressants	Avoid tertiary tricyclics (for example, amitriptyline) because of concerns over adverse side effects; consider trial of secondary amine (nortriptyline) for neuropathic pain	Side effects limit use, electrocardiographic monitoring required owing to risk of QTc prolongation; serum level monitoring also recommended	Moderate
Anticonvulsants (for example, pregabalin, gabapentin)	Use for neuropathic pain	Side effects limit use (for example, sedation, peripheral edema); dose adjustment necessary in those with renal impairment	Moderate

NSAIDs=non-steroidal anti-inflammatory drugs.

*Recommendations present in both UK and US guidelines.^{2,3}

†Quality of evidence ratings are from the 2009 American Geriatrics Society guideline.

TIPS FOR NON-SPECIALISTS

Pain is more than just a sensory event; assessing for the presence and severity of pain captures only a small part of the pain experience

Diagnostic imaging is often overused and does not equal better care

Consider specialist referral for older patients who have complicated psychiatric histories, debilitating pain, or pain that does not respond to customary treatments

Use combinations of analgesic drugs to enhance analgesic effectiveness

Non-drug approaches to include exercise and cognitive behavioral approaches are underutilized. Educate older patients about these approaches and identify local practitioners or agencies that provide them

Implement surveillance plan to assess treatment efficacy, tolerability, and adherence with each new treatment

with a greater incidence of treatment related adverse effects. This risk is increased by the presence of multiple comorbidities, polypharmacy, and physiologic vulnerability. Careful surveillance is necessary after beginning an analgesic trial. Frequent telephone or email contact is recommended to assess for and deal with any adverse effects.

What psychological interventions are available?

There is optimism about the role of psychological interventions as treatment for older patients with chronic pain.³⁶

Cognitive behavioral therapy

The use of CBT is promising.³⁷ CBT is used to enhance patients’ control over pain, based on the premise that an individual’s beliefs, attitudes, and behaviors play a central role in the experience of pain. Standard CBT protocols instruct patients in the use of specific cognitive and behavioral techniques, teach them how certain thoughts, beliefs, attitudes, and emotions influence pain, and highlight the patient’s own role in controlling and adapting to chronic pain. CBT techniques are underutilized, particularly among older adults with chronic pain. Few providers have been trained to deliver the protocols for pain, particularly in less developed countries.³⁸ Two recent high quality trials broaden the scope of treatment to include sustainable self management practices in primary care.^{41, 42} In one trial, investigators evaluated a CBT based self management program for use by older patients with chronic pain in primary care.⁴¹ Significant improvements in distress from the pain, disability, and self efficacy were found in patients who received CBT training compared with an exercise only and wait list control group.

Self management programs

Self management programs merge physical, psychological, and social dimensions and adopt a largely educational approach, teaching patients specific strategies to reduce pain by changing their behavioral, cognitive, and emotional responses to pain and building self efficacy for managing pain and its sequelae. Evidence about the value of self management programs for pain is mixed. Several reviews have reported positive treatment outcomes,^{43, 44} whereas others have not.^{45, 46}

What rehabilitative and exercise approaches are available?

Exercise interventions for older adults with chronic pain are evidenced based, underutilized, and should be a core component of any long term treatment plan. Primary components include training in balance, flexibility, endurance, and strengthening, the mix of which should be tailored to best meet the needs of each patient. Clinicians can refer patients to physiotherapists to develop an exercise program. Physiotherapists can also reinforce related concepts to include coaching on risk of falls, balance training, body mechanics, and pacing. Simple physician advice to remain physically active despite pain, in the absence of a specific exercise routine, is ineffective.

Practitioners should consider the preferences of individual patients when prescribing exercise, including the preferred location (for example, gym, home) as well as type of exercise. Older patients with chronic pain may not have access to facilities for exercise or may lack the motivation to engage. It is important to address these barriers or adherence will be low.

When should patients be referred to a pain specialist?

Practitioners should refer patients when pain is unresponsive (or poorly responsive) to standard treatments, a psychiatric condition (for example, active substance use disorder, excluding nicotine) or medical condition (for example, hepatic or renal dysfunction) would complicate management, there are concerns about misuse of opioids, and procedures (for example, nerve block) may help to clarify a diagnosis or are indicated for the treatment of a given pain disorder.

What limitations exist in the evidence base about treatment?

Although the number of well designed studies evaluating drug or non-drug treatments for older adults with chronic pain is growing, there are important limitations in the existing evidence base. Factors limiting the generalizability of findings include the use of various outcome measures, which make it difficult to compare across studies, short duration of most trials (≤12 weeks), lack of diversity in study populations (inclusion of mostly white, non-Hispanic patients), and greater enrolment of young-old participants (with few participants aged ≥80) without major comorbidity.