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Chronic pain: How to approach these 3 common conditions

Fibromyalgia, osteoarthritis, and low back pain require multimodal, evidence-based treatment plans. Tailoring those plans to the underlying mechanisms of pain is key.

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PRACTICE RECOMMENDATIONS

› *Recommend cognitive behavioral therapy for most patients suffering from chronic pain.* (A)

› *Recommend movement and exercise therapies for all patients with chronic pain.* (A)

› *Prescribe anti-inflammatory medications for patients with peripheral nociceptive pain and centrally-acting agents, such as tricyclic antidepressants, serotonin norepinephrine reuptake inhibitors, and alpha 2 delta ligands, for patients with centralized pain.* (A)

Strength of recommendation (SOR)

(A) Good-quality patient-oriented evidence

(B) Inconsistent or limited-quality patient-oriented evidence

(C) Consensus, usual practice, opinion, disease-oriented evidence, case series

CASE 1 ▶ Lola A is a 28-year-old woman with a history of muscular aches and joint pain throughout her body, fatigue, and mental fogginess. She has been seen by a rheumatologist and has been given a diagnosis of fibromyalgia, but just moved to your town and is establishing care. She is feeling desperate because her pain has worsened and the medication previously prescribed (gabapentin 300 mg tid) is no longer working. She asks to try oxycodone.

CASE 2 ▶ Matt P is a 59-year-old truck driver with severe hip osteoarthritis (OA). His orthopedist recommended against hip replacement at this time because of his young age and a heart condition that makes him high risk. His pain makes sitting for long periods very difficult. He presents to you for help because he is worried he will be unable to continue working.

CASE 3 ▶ Keith B is a 56-year-old construction worker who has been suffering from bouts of back pain for many years. The pain has become more debilitating over time; currently, it is constant, and Mr. B can hardly make it through his work day. He has been getting hydrocodone/acetaminophen from urgent care centers and emergency rooms, but he isn't sure it is helping and is coming to you to assume his pain management.

Chronic pain (defined as pain >3 months in duration), is a complex, heterogeneous condition affecting an estimated 116 million US adults.[1] Much of the management of chronic pain occurs in primary care settings, placing family physicians (FPs) on the front lines of 2 epidemics: that of chronic pain itself and that of the abuse and misuse of opioid pain medications.

In an effort to improve communication about the risks and benefits of opioid therapy and the safety and effectiveness of pain treatments in general, many professional organizations, health care institutions, and recently the Centers

for Disease Control and Prevention,[2] have published guidelines on the use of opioids for non-malignant chronic pain. With these guidelines in mind—and in light of the latest evidence—we propose the paradigm that follows for the treatment of chronic pain. A critical aspect of this paradigm is determining the pathophysiology underlying a patient's pain in order to develop a well-rounded, multimodal, evidence-based treatment plan. Detailed here is the application of this approach to the treatment of 3 common chronic pain diagnoses: fibromyalgia, osteoarthritis, and low back pain.

Look to the central and peripheral nervous system

Acute pain begins with activation of peripheral nociceptors at the site of injury. This causes depolarization up the spinal cord and through the brain stem to higher cortical centers where the pain is perceived and localized. Descending neural pathways transport both excitatory and inhibitory information from the brain to the periphery via the spinal cord, which either increases or decreases the perception of pain.[3]

With central sensitization, pain is often accompanied by other systemic symptoms such as fatigue—often in the setting of little to no actual stimulation of the peripheral nociceptors.

When damage/injury doesn't correlate with the perception of pain

Until recently, it was assumed that chronic pain worked much the same way as acute pain and was caused by ongoing nociceptive input in the periphery, but research has shown us that the central nervous system can play a large role in the modulation of nociception. This new understanding comes from the lack of evidence pointing to any pain state in which the degree of nociceptive input correlates with the degree of pain experienced.

For most patients with chronic pain, regardless of their diagnosis, there is some degree of alteration in the processing of nociceptive signals by the central nervous system contributing to the experience of pain.[4] This alteration is thought to be the result of peripheral nociceptive signaling persisting past the point of tissue healing, leading to a hypersensitivity of nerve fibers; the fibers then continue to respond to low, or even absent, sensory stimuli.

Central sensitization is the term used when this hypersensitivity develops in the superficial, deep, and ventral cord nerves. When this happens, pain is often accompanied by other systemic symptoms such as fatigue and slowed cognitive processing, often in the setting of little to no actual stimulation of the peripheral nociceptors.[3] (For more on this, see "A new paradigm for pain?" *J Fam Pract.* 2016;65:598-605 or go to http://www.mdedge.com/jfponline/article/111257/pain/new-paradigm-pain.)

TABLE 1[4] lists the possible mechanisms of pain, which can be broken down into 4 categories: peripheral nociceptive (inflammatory or mechanical), peripheral neuropathic (underlying damage to a peripheral nerve), central (referring to when the central nervous system is the primary entity involved in maintaining the pain), or any combination of the 3.

As pain becomes chronic, multiple mechanisms overlap

It is important to remember that for any single pain diagnosis, there is likely to be—at least initially—a principle underlying mechanism generating the pain. But as the pain becomes chronic, an overlap of multiple mechanisms develops, with central sensitization often playing a more dominant role than peripheral stimulation (regardless of the diagnosis).

For example, in a patient with rheumatoid arthritis (RA), peripheral nociceptive input (in the form of inflammation) is likely the initial mechanism at work, but as time goes on, central processing becomes more involved. The patient may then begin to experience pain that is disproportional to what is generally expected with RA and may develop other somatic symptoms. The diagnosis then becomes pain primarily related to RA with central sensitization, and both need to be addressed in a treatment plan. In rheumatic conditions, comorbid fibromyalgia (indicative of central sensitization) is thought to occur in 15% to 30% of patients.[5]

FPs can utilize the underlying mechanisms to cut across diagnostic labels and tailor treatments to those that are most likely to be effective. For a patient with more prominent peripheral involvement, a procedural

TABLE 1
Mechanisms of pain[4]

Peripheral nociceptive pain	Central neuropathic pain or central sensitization	Combination of peripheral and central mechanisms
• Inflammation or mechanical damage in tissues • Responds to NSAIDs, opioids • Responds to procedures • Classic examples: - Osteoarthritis - Rheumatoid arthritis - Cancer pain	• Characterized by central disturbance in pain processing (diffuse hyperalgesia/allodynia) • Responds to neuroactive compounds that alter levels of neurotransmitters involved in pain transmission • Responsive to nonpharmacologic therapies such as exercise and CBT • Classic examples: - Fibromyalgia - Irritable bowel syndrome - TMJD - Tension headache	• Involvement of both inflammatory or mechanical damage to the tissues along with dysfunction in central pain processing • Need to treat all contributing mechanisms • Classic examples: - Low back pain - Rheumatologic diseases that develop into comorbid fibromyalgia
Peripheral neuropathic pain		
• Damage to, or dysfunction of, peripheral nerves • Responds to both peripheral and centrally acting pharmacologic therapies • Class examples: - Diabetic neuropathic pain - Postherpetic neuralgia		

CBT, cognitive behavioral therapy; NSAIDs, nonsteroidal anti-inflammatory drugs; TMJD, temporomandibular joint disorder.

*__Adapted with permission from:__ Dr. Daniel Clauw, University of Michigan.

intervention such as injections or surgery alone may suffice, whereas a broader approach including psychotherapy, medications, exercise, and other lifestyle interventions may be necessary for a patient with pain caused predominantly by central sensitization.

Addressing both peripheral and central components is essential. One prospective, observational cohort study of more than 600 patients scheduled for unilateral total knee or total hip arthroplasty found that those patients with a higher degree of centralization of pain (as measured by widespread pain index and modified fibromyalgia screening scales[6]) were less likely to report improvement in the affected body part and in overall body pain following the surgery.[7]

There is a high degree of overlap among many of the chronic pain syndromes (fibromyalgia, irritable bowel syndrome, interstitial cystitis, chronic headaches) that have been found to have a central sensitization component.[8] Providers of primary care are aptly positioned to recognize central sensitization as the underlying pathology and target treatment effectively.

Tailor the treatment plan to the underlying mechanisms of pain

As with any chronic condition, a thorough work-up (complete with history, physical exam, and diagnostic testing, as appropriate) is indicated. In the setting of chronic pain, it's important to identify both the primary mechanism, as well as secondary factors that may be contributing to the patient's pain, before developing your treatment plan. These secondary factors may include co-occurring affect disorders,[9] a history of trauma,[10] poor sleep,[11] and tobacco use,[12] among others. A history of trauma, for example, co-exists with many pain syndromes. For these patients, central sensitization is responsible for much of their pain. As a result, traditional cognitive behavioral therapy (CBT) may not be the best option because of its focus on accepting pain as a chronic diagnosis; more trauma-focused treat-

TABLE 2

Treatment options for fibromyalgia: What works?

Treatment	Specifics	SOR*	Adverse effects	Clinical pearls
Nonpharmacologic therapies				
Patient education[25]	Incorporate principles of self-management into patient teaching, including a multimodal approach.	A		Following initial diagnosis, spend several visits (or use separate educational sessions) explaining the condition and setting treatment expectations.
Graded exercise[26]	Aerobic exercise has been studied the most, but strengthening and stretching have also been shown to be of value.	A	Worsening of symptoms when program is begun too rapidly	Counsel patients to "start low, go slow." For many patients, focusing first on increasing daily activity is helpful before starting a formal exercise routine.
CAM therapies[27]	Most CAM therapies have not been rigorously studied, but there is emerging evidence that CAM treatments such as Tai Chi, yoga, balneotherapy, and acupuncture might be effective.	A	Generally safe	Allowing patients to choose which CAM therapies to incorporate into an active treatment program can increase self-efficacy.[28]
CBT[29]	Pain-based CBT programs have been shown to be effective in one-on-one settings, small groups, and via the Internet.	A	No significant adverse effects *per se*, but patient acceptance is often poor when CBT is viewed as a "psychological intervention."	Internet-based programs are gaining acceptance and are more convenient for working patients.
Pharmacologic therapies†				
Tricyclic compounds	Amitriptyline 10-70 mg at bedtime[30] Cyclobenzaprine 5-20 mg at bedtime[31]	A	Dry mouth, weight gain, constipation, "groggy" or drugged feeling	When effective, these agents can improve a wide range of symptoms including pain, sleep, and bowel and bladder symptoms. Taking these drugs several hours prior to bedtime improves the adverse effect profile.
SNRIs[32]	Duloxetine 30-120 mg/d Milnacipran 100-200 mg/d	A	Nausea, palpitations, headache, fatigue, tachycardia, hypertension	Warning patients about transient nausea, advising them to take the drug with food, and slowly increasing the dose can increase tolerability. Milnacipran might be slightly more noradrenergic than duloxetine and thus potentially more helpful for fatigue and memory problems, but milnacipran is also more likely to cause hypertension.

ments such as those dealing in emotional awareness and understanding of the central nervous system's role in chronic pain need to be considered.[13]

3 common conditions. Below we present evidence-based treatment approaches for 3 conditions that are typically associated with each of the major mechanisms of chronic pain generation: fibromyalgia (a central sensitization cause), OA (a peripheral nociceptive cause), and low back pain (a mixed pain state).

Fibromyalgia: A case of central sensitization

Fibromyalgia is a hallmark diagnosis for those patients in whom central sensitization

TABLE 2
Treatment options for fibromyalgia: What works? (*continued*)

Treatment	Specifics	SOR*	Adverse effects	Clinical pearls
SSRIs[32]	Fluoxetine, sertraline, paroxetine	A	Nausea, sexual dysfunction, weight gain, sleep disturbance	Older, less selective SSRIs may have some efficacy in improving pain, especially at higher doses that have more prominent noradrenergic effects. Newer SSRIs (citalopram, escitalopram, desvenlafaxine) are less effective or ineffective as analgesics.
Gabapentinoids[33]	Gabapentin 800-2400 mg/d in divided doses Pregabalin up to 600 mg/d in divided doses	A	Sedation, weight gain, dizziness	Giving most or the entire dose at bedtime can increase tolerability.
Opioid receptor agonists[34]	N/A	No evidence for use	Sedation, constipation, addiction, opioid-induced hyperalgesia	Occasionally needed for patients with a mixed inflammatory or nociceptive pain component.
Combined opioid receptor agonist/SNRI[35]	Tramadol 50-100 mg 2-3 times/d; PRN dosing	B	Sedation, constipation	Only recommended as second-line agent. Less effective than SNRIs alone.
Low-dose naltrexone[36]	4.5 mg/d	B	N/A	Available only as a compounded medication.

CAM, complementary and alternative medicine; CBT, cognitive behavioral therapy; N/A, not applicable; PRN, as needed; SNRIs, serotonin norepinephrine reuptake inhibitors; SOR, strength of recommendation; SSRIs, selective serotonin reuptake inhibitors.

*See page 145 for an explanation of the SOR ratings.

†Pharmacologic therapy is best chosen based on the predominant symptoms and initiated in low doses with slow dose escalation. Some practitioners find that getting patients on a drug regimen that helps improve symptoms prior to initiating nonpharmacologic therapies helps improve compliance.

is the dominant cause of pain. These patients usually present with widespread, diffuse pain, as well as somatic symptoms such as fatigue, memory difficulties, and poor sleep quality.[8] When explaining the pain mechanism (ie, central sensitization) to patients, it may be useful to use the analogy of a volume control dial that is stuck in the "high" position and can't be turned down.

Genes, the environment, and neurotransmitters play a role. The origin of the pain amplification process is believed to be multifactorial.

- **Genetic factors** are thought to contribute to a predisposition for amplification. To date, 5 sets of genes have been implicated in increased sensitivity to pain leading to increased risk of the development of chronic pain during a patient's lifetime.[14-19]
- **Environmental factors** (eg, early life trauma, physical trauma especially to the trunk, certain infections such as Lyme disease and Epstein-Barr virus, and emotional stress) may trigger or exacerbate symptoms.[8] Of note: Only about 5% to 10% of people who experience these triggers actually develop a chronic pain state, while the rest regain their baseline health.[4] This raises the question of whether there is a point during an acute pain episode in which one can intervene and prevent the acute pain from becoming chronic in those at higher risk.[4]
- **Imbalances of neurotransmitters** (high glutamate;[20] low norepinephrine, serotonin,[21] and gamma-aminobutyric acid [GABA][22]) play a role in central amplification. These substances not only affect sensory transmission, but also control levels of alertness, sleep, mood, and memory.

The diagnostic criteria for fibromyalgia were modified in 2011 to remove the ten-

der point examination and to add in somatic symptoms.[6] These criteria can be useful in the clinical setting in identifying not only fibromyalgia itself but also the degree of "fibromyalgianess" a patient has, which is an indicator of how large a role the centralization process plays in the maintenance of chronic pain.[23,24]

Treatment: Multimodal and patient empowering. Evidence-based treatment options for fibromyalgia, as well as other conditions for which there is a high degree of centralized pain, can be found in **TABLE 2**.[25-36] Multimodal treatment, with an emphasis on patient knowledge and empowerment, is generally thought to be the most beneficial.[25,37] Treatment should almost always include CBT and exercise/activity therapies,[26,29] which have high degrees of efficacy with few adverse effects.

In terms of medication, centrally-acting agents (tricyclic antidepressants, serotonin norepinephrine reuptake inhibitors [SNRIs], and alpha 2 delta ligands) are the most effective. There is little to no data showing benefit from anti-inflammatories or opioids in the setting of fibromyalgia. There is some data to suggest that combination therapy, for example with an SNRI (milnacipran) and an alpha 2 delta ligand (pregabalin), may provide more benefit than treating with pregabalin alone.[38]

Complementary and alternative therapies (eg, yoga, chiropractic care, acupuncture, massage) are being studied more, and while evidence is only preliminary in terms of efficacy, there is increasing emphasis being placed on the need for patients with chronic pain to shift their treatment expectations to greater acceptance of pain and the need for ongoing self-care.[28] (For more advice on managing fibromyalgia, see the related videos at http://bit.ly/2lPEt0f and http://bit.ly/2lmjEcn.)

Identify any factors that might be contributing to your patient's pain, such as co-occurring affect disorders, a history of trauma, poor sleep, or tobacco use.

Osteoarthritis: An example of peripheral nociceptive pain

OA is a condition long thought to be characterized by damage to the cartilage and bone; however, as with many other pain diagnoses, there is frequently little correlation between damage seen on radiographs and the amount of pain that patients experience.

One study analyzed data on almost 7000 patients from the National Health and Nutrition Examination Survey (NHANES I) and found that between 30% and 50% of OA patients with moderate to severe radiographic changes were asymptomatic, and 10% of those with moderate to severe pain had normal radiographs or only mild changes.[39] Research is showing that many factors may contribute to this discrepancy, including the typical "wear and tear" of the disease, subacute levels of inflammation that can lead to peripheral sensitization,[40] and, in some patients, a centralized pain component. The patients with more centralized pain often have pain that is disproportionate to radiographic evidence, as well as more somatic symptoms such as fatigue, sleep disturbance, and memory issues.[41]

Treatment should be multimodal and include interventions targeted at halting the progression of damage as well as palliation of pain. All treatment plans for OA should also include exercise, weight reduction, and self-management, in addition to pharmacologic interventions, to reduce both the microinflammation and the centralized pain component (when present). Intra-articular injections of various types have been studied with some having more efficacy in pain reduction and functional improvement than others.[42-45] See **TABLE 3**[42-61] for a summary of evidence-based treatment options.

Low back pain—a mixed pain state

Low back pain (LBP) has been recognized as a mixed pain state for quite some time. While some patients may experience purely nociceptive and/or neuropathic pain, most cases are nonspecific with patients experiencing varying degrees of nociceptive (myofascial low back pain), neuropathic (lumbar radiculopathy), and central sensitization pain.[62,63] Evidence for centralized pain is demonstrated in studies showing hyperalgesia,[64] augmented central pain processing,[65] involvement of the emotional brain,[66] and delayed recovery influenced by poor coping strategies.[67]

When developing a treatment plan for a patient with chronic low back pain, remember that the pain derives from a complex combination of pathophysiologic contributors. Identify-

TABLE 3

Treatment options for osteoarthritis: What works?

Treatment	Specifics	SOR*	Adverse effects	Clinical pearls
Patient education and self-management programs[46,47]	Can boost adherence to exercise modalities	A		Following initial diagnosis, spend several visits (or use separate educational sessions) explaining the condition and setting treatment expectations.
Exercise (eg, land-based, aquatic, Tai Chi)[48,49]	Prevents progression, decreases pain, and increases function	A	Adherence can be a problem	
Acetaminophen[50]	Evidence does not support its use for OA	A	Liver and kidney damage	
NSAIDs[50]	Diclofenac 150 mg/d in divided doses	A	Cardiac complications, GI bleeding	Likely most beneficial in the setting of acute flare-ups of pain. Topical preparations are more effective than placebo and have fewer adverse effects than oral preparations.
Opioid agonists[51]	Recent meta-analysis showed almost no improvement over NSAIDs for pain and function.[52]	B	Sedation, constipation, addiction, opioid-induced hyperalgesia	Risk-benefit discussion is needed before initiation. Should be used as a second-line therapy only in patients for whom other strategies are not sufficient.
SNRIs[51]	Duloxetine 30-60 mg/d	B		Can be used as first-line therapy for patients with a centralized pain component.
Intra-articular injections	1. Hyaluronic acid	A		1. Likely to have a longer duration of effect than steroid injections (based on heterogeneous data).[42]
	2. Steroids	B	Alters glucose regulation	2. Short-term improvement in pain, but no efficacy after 26 weeks.[43]
	3. Platelet-rich plasma	B		3. Significant reductions in pain for up to 12 months.[44]
	4. Botulism toxin	B		4. Short-term studies (up to 12 weeks) show reduction in pain in refractory OA cases.[45]
Glucosamine and chondroitin	No statistically significant evidence showing reductions in pain alone or in combination, but trends toward positive findings exist for both.[53,54]	B	No significant AEs in studies. Glucosamine theoretically can cause GI upset, headache, and tachyarrhythmia.	Trends toward pain[55] and function[56] benefit for glucosamine Chondroitin has shown some effects on radiologic disease progression in knee OA.[57]
Dietary interventions to lower inflammation	1. Turmeric (curcumin)	B		1. Heterogeneous data showing overall improvement in inflammatory biomarkers and function along with decreased pain. Dosing not consistent among studies.[58]
	2. Plant-based diet	B		2. Showed improvement in functionality.[59]
Acupuncture		B	Few to none	Statistically significant: • decrease in pain • improvement in functional status • improvement in quality of life[60,61]

AEs, adverse events; GI, gastrointestinal; NSAIDs, nonsteroidal anti-inflammatory drugs; OA, osteoarthritis; SOR, strength of recommendation; SNRI, serotonin norepinephrine reuptake inhibitors.

*See page 145 for an explanation of the SOR ratings.

TABLE 4

Treatment options for chronic low back pain: What works?

Treatment	Specifics	SOR*	Adverse effects	Clinical pearls
Self-management[70] Patient education[71]	Zero to small benefit	B	None	More evidence for education in acute back pain
Exercise	Mean decrease in pain of 13.3% and increase in function of 6.9%[72]	B	There were no adverse events reported.	In subacute low-back pain, there is some evidence that a graded activity program improves absenteeism outcomes.
Heat/cold application[73]	Heat reduces pain/disability for up to 3 months. Cold not helpful	B B	There were no adverse events reported.	Heat treatments include warm packs, hot baths/steam, and infrared heat lamps.
OMT	Improves pain and function when used alone[74] or added to other interventions[75]	B	Serious adverse events associated with lumbar spine manipulation are rare (<1 in 1,000,000).[76]	OMT can include a range of manual techniques, is not standardized between practitioners, and can be delivered by osteopathic physicians, chiropractors, and physical therapists.
Massage	Unlikely helpful[77]	B	Increased pain	Improvements observed, but only in short term
US and TENS	There is no evidence to support the use of TENS[78] or therapeutic ultrasound.[79]	B	Severe rash with TENS unit rare. No safety data for therapeutic US.	Alert patients that they must be wary if these modalities make up the bulk of a physical therapy session.
Acupuncture	May have additive effect on pain relief and function when used in addition to other therapies[80]	B	Serious complications are rare. Patients could experience pain or bleeding.[81]	Benefit over no therapy or sham therapy observed for up to 3 months
Yoga	More effective than a self-care book for improving function and reducing pain[82]	B	No serious adverse events	
Behavioral therapy	More effective with longer lasting results than usual care[83]	A	No reported adverse events with therapy	No significant differences between MBSR and CBT
Injection therapy (sites reviewed included epidural, facet, and local)	No strong evidence for or against the use of any type of injection therapy[84]	B	Headaches, dizziness, pain, numbness, cauda equina, septic arthritis, paraplegia, paraspinal abscesses	Cannot rule out potential benefit of specific agents (steroids, NSAIDs, opioids, and local anesthetics) to specific subgroups of patients
Surgery	Fusion is no more effective than intensive rehabilitation, but is associated with small benefits compared to standard therapy.[85]	B	Major adverse effects include deep wound infection, bleeding, thrombosis, ARDS, pulmonary edema, and heart failure.	Formal shared decision-making aids have been shown to decrease the proportion of patients who choose spine surgery, without adversely affecting clinical outcomes.

ing where a patient lies on the pain centralization spectrum can help you tailor treatment.

In one study of 548 patients presenting to a tertiary pain clinic with primary spine pain diagnoses, 42% met diagnostic criteria for fibromyalgia.[68] Compared to criteria-negative patients, these patients tended to be younger, unemployed, and receiving compensation; they had greater pain intensity, pain interference, and used stronger words to describe their neuropathic pain; they also had higher levels of depression/anxiety and a lower level of physical function.

Because low back pain is a condition with high prevalence and associated disability, many clinical boards have created guidelines for management. These guidelines tend to vary in the strength of evidence used, and the extent

TABLE 4

Treatment options for chronic low back pain: What works? (*continued*)

Treatment	Specifics	SOR*	Adverse effects	Clinical pearls
Acetaminophen	No improvement in pain or function[86,87]	A	COX inhibition at high doses; increased risk of MI, HTN, renal failure, decreased hemoglobin	Occasional use is safe, and marginal effect is not statistically significant. High-dose acetaminophen should be avoided, given its limited efficacy and risk of toxicity.
NSAIDs	Slightly more effective than placebo for pain and disability reduction[88]	B	Gastropathy, renal impairment, drug-drug interactions Extra care required in individuals at risk for CVD/VTE	NSAIDs considered first-line treatment by many guidelines
Antidepressants	Not more effective than placebo with respect to pain or functional status.[89]	A	No specific data	Patients with a previous history of LBP had improved psychosocial outcomes (including anxiety and depression).
Opioids	No benefit over NSAIDs with regard to pain and disability[89]	B	Dependence, constipation	Rate of AEs significantly greater than placebo

AEs, adverse events; ARDS, acute respiratory distress syndrome; CBT, cognitive behavioral therapy; COX, cyclooxygenase; CVD/VTE, cardiovascular disease/venous thromboembolism; HTN, hypertension; LBP, low back pain; MBSR, mindfulness-based stress reduction; MI, myocardial infarction; NSAIDs, nonsteroidal anti-inflammatory drugs; OMT, osteopathic manipulation therapy; TENS, transcutaneous electrical nerve stimulation; US, ultrasound.

*See page 145 for an explanation of the SOR ratings.

to which they are followed in clinical practice remains largely unknown. Recommendations frequently discourage the use of ultrasound/electrotherapy, but many encourage *short-term* use of medications (see "How effective are opioids for chronic low back pain?" *J Fam Pract.* 2015;64:584-584), supervised exercise therapy, CBT, and multidisciplinary treatment.

Guidelines tend to differ most widely with regard to recommendations for spinal manipulation and specific drug therapies.[69] The classes of drugs that may be most useful when centralized pain is present include the SNRIs and the alpha 2 delta calcium channel ligands.[4] See **TABLE 4**[70-89] for a summary of evidence-based treatment options.

CASE 1 ▶ Ms. A is started on amitriptyline 25 mg at bedtime, which improves her fatigue and cognitive symptoms. During monthly office visits, her FP educates her about the pathophysiology of fibromyalgia and uses motivational interviewing to get her slowly moving and increasing her activity level. She is weaned off the gabapentin previously prescribed, as her symptoms stabilize and improve.

CASE 2 ▶ Mr. P is sent for a steroid injection, which decreases his pain temporarily. During this time, he begins physical therapy; slowly, with increased movement, his function improves. A trial of duloxetine provides pain relief; that combined with intermittent nonsteroidal anti-inflammatory drugs (NSAIDs) has allowed Mr. P to maintain his function and his job.

CASE 3 ▶ Because Mr. B was only taking the narcotics intermittently and wasn't certain they were helping, CBT was sufficient to wean Mr. B off the medication without any worsening of his pain in the process. By participating in physical therapy, he has learned how to perform certain tasks at his job without pain or injury. He uses NSAIDs as needed for pain. JFP

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