

ORGANIZATION NEWS

Information/Education Page

Low Back Pain and Traumatic Brain Injury



Chronic pain, including chronic low back pain, is common among individuals with a history of traumatic brain injury (TBI). The good news is that many treatments for chronic low back pain are safe and effective for individuals with TBI. This clinical pocket card summarizes current evidence-based approaches to treating chronic low back pain,¹ with added TBI-related treatment considerations.² Treatments for chronic low back pain fall into 2 broad categories: pharmacologic (ie, medication) and nonpharmacologic.

Considerations for pharmacologic chronic pain treatments for individuals with TBI

- Chronic use (particularly daily) of nonsteroidal anti-inflammatory drugs or acetaminophen, either alone or combined with caffeine, may lead to medication overuse or rebound headaches. Treatment of medication overuse headaches requires patients to stop daily use of acute headache medication.
- Patients with a history of TBI can be more sensitive to side effects. Watch closely for toxicity and drug-drug interactions. Assess regularly for side effects.
- Unless side effects prevail, give full therapeutic trials at maximal tolerated doses before discontinuing a medication trial. Under-treatment is common.
- Educate patients and family/caregivers to avoid the use of alcohol with the medications.
- When possible, avoid medications that lower the seizure threshold (eg, bupropion,

tramadol, bronchodilators, tricyclics, opiates/narcotics).^{1,3-6}

- When possible, avoid medications that can cause cognitive dysfunction or exacerbate confusion (ie, anticholinergic agents, narcotics, lithium, benzodiazepines, topiramate).
- Suicidal ideation is higher in the TBI population compared with the general population. Individuals prescribed the following medications should be monitored regularly for suicidality: tricyclics (ie, amitriptyline, desipramine, doxepin, nortriptyline), mirtazapine, and trazadone.

Considerations for nonpharmacologic chronic pain treatments for individuals with TBI

- Nonpharmacologic interventions for low back pain include physical therapy, acupuncture, spinal manipulation, prescribed exercise, and cognitive behavior therapies such as cognitive restructuring, mindfulness, and relaxation techniques. Most nonpharmacologic treatments require involvement by the patient. The following are common cognitive deficits and suggested cognitive adaptations that should be made for individuals with TBI to enhance therapeutic engagement.⁷
- Attention and concentration deficits:
 - Reduce potential distractions by muting phones and holding treatment sessions away from windows or open doorways.
 - Use shorter, more frequent sessions.
 - Plan breaks during sessions.

- Communication deficits:
 - Use clear, structured questions and direct commands.
 - Incorporate visual resources and/or gestures.
 - Emphasize behavioral techniques.
- Memory deficits:
 - Encourage the patient to use a therapy notebook or device to record information.
 - Repeat salient points frequently.
 - Involve a family member or caregiver.
- Executive functioning:
 - Present information slowly to allow for slower processing speed.
 - Focus on concrete examples during discussion. Use examples to help the patient generate possible solutions. If the patient is unable, the clinician should suggest solutions and confirm understanding with the patient.

- Use a “say it, show it, do it” approach to model tasks for the patient for tasks to be completed in session as well as to confirm understanding of homework assignments (eg, prescribed exercises).

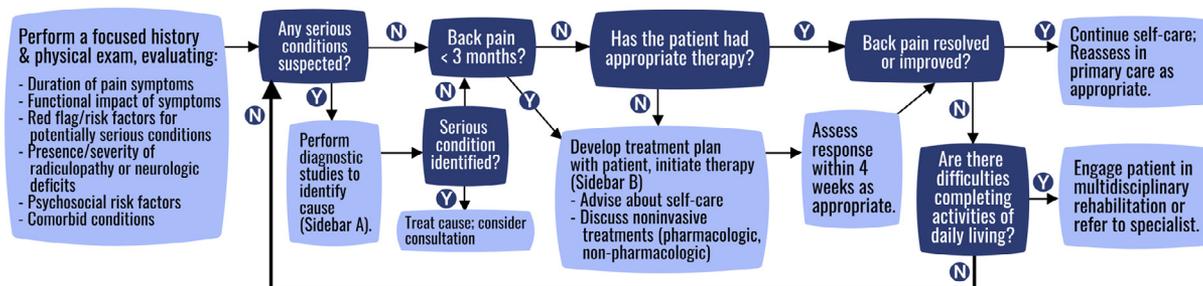
Please see the treatment algorithm graphic (fig 1).

Authorship

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Disclaimer

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Sidebar A

Possible causes or conditions	Red flags or risk factors noted on history & physical exam	Suggested diagnostic imaging
Cancer	Hx of cancer with new onset of LBP Unexplained weight loss Failure of LBP to improve after 1 month Age 50+ years Multiple risk factors present	Lumbrosacral plain radiography For inconclusive results, advanced imaging (e.g., MRI with contrast, as appropriate)
Infection	Fever Intravenous drug use Recent infection Immunosuppression	MRI with contrast ESR
Fracture	Hx of osteoporosis Chronic use of corticosteroids Age 75+ years Recent trauma Younger patients with overuse at risk for stress fracture	Lumbrosacral plain radiography For inconclusive results, advanced imaging (e.g., MRI, CT, or SPECT, as appropriate)
Ankylosing spondylitis	Morning stiffness Improvement with exercise Alternating buttock pain Awakening due to LBP during the 2nd part of the night (early morning awakening) Younger age	Anterior-posterior pelvis plain radiography
Herniated disc	Radicular back pain (e.g., sciatica) Lower extremity dysesthesia and/or paraesthesia Positive or crossed straight-leg-raise test	None
	Severe/progressive lower extremity neurologic deficits Symptoms present > 1 month	MRI
Spinal stenosis	Radicular back pain (e.g., sciatica) Lower extremity dysesthesia and/or paraesthesia Neurogenic claudication Age 60+ years	None
	Severe/progressive lower extremity neurologic deficits Symptoms present > 1 month	MRI
Cauda equina or conus medullaris syndrome	Urinary retention Urinary or fecal incontinence Saddle anesthesia Changes in rectal tone Severe/progressive lower extremity neurologic deficits	Emergent MRI

Sidebar B

Category	Intervention	LBP Duration	
		Acute < 4 weeks	Subacute or Chronic > 4 weeks
Self-care	Advice to remain active	X	X
	Books, handouts	X	X
	Application of superficial heat	X	
Non-pharmacologic therapy	Spinal manipulation		X
	Clinician-guided exercise		X
	Acupuncture		X
	CBT and/or mindfulness-based stress reduction		X
	Exercise which may include Pilates, tai chi, and/or yoga		X
Pharmacologic therapy	NSAIDs	X	X
	Non-benzodiazepine skeletal muscle relaxants	X	
	Antidepressants (duloxetine)		X
Other therapies	Intensive interdisciplinary rehabilitation		X

Fig 1 Treatment algorithm graphic. CBT, cognitive behavioral therapy; CT, computed tomography; LBP, low back pain; MRI, magnetic resonance imaging; NSAIDs, nonsteroidal anti-inflammatory drugs; SPECT, single-photon emission computerized tomography.

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Acknowledgment

Graphic adapted from the VA/DoD Clinical Practice Guideline (CPG) for Low Back Pain.

References

1. Department of Veterans Affairs, Department of Defense. VA/DoD Clinical Practice Guidelines: diagnosis and treatment of low back pain (LBP). Available at: <https://www.healthquality.va.gov/guidelines/Pain/lbp>. Accessed March 31, 2021.
2. Department of Veterans Affairs, Department of Defense. VA/DoD Clinical Practice Guideline for the management of concussion-mild traumatic brain injury. Available at: <https://www.healthquality.va.gov/guidelines/Rehab/mtbi/mTBICPGFullCPG50821816.pdf>. Accessed March 31, 2021.
3. Alper K, Schwartz KA, Kolts RL, Khan A. Seizure incidence in psychopharmacological clinical trials: an analysis of Food and Drug Administration (FDA) summary basis of approval reports. *Biol Psychiatry* 2007;62:345–54.
4. Löscher W. Critical review of current animal models of seizures and epilepsy used in the discovery and development of new antiepileptic drugs. *Seizure* 2011;20:359–68.
5. Sutter R, Rüegg S, Tschudin-Sutter S. Seizures as adverse events of antibiotic drugs: a systematic review. *Neurology* 2015;85:1332–41.
6. Penninga EI, Graudal N, Ladekarl MB, Jürgens G. Adverse events associated with flumazenil treatment for the management of suspected benzodiazepine intoxication—a systematic review with meta-analyses of randomised trials. *Basic Clin Pharmacol Toxicol* 2016;118:37–44.
7. Gallagher M, McLeod HJ, McMillan TM. A systematic review of recommended modifications of CBT for people with cognitive impairments following brain injury. *Neuropsychol Rehabil* 2019;29:1–21.