INBRIEF | Summarizing the Evidence

Gabapentin for Adults With Neuropathic Pain: A Review

Key Messages

- Overall, evidence suggests that there is a greater reduction in neuropathic pain (NP) with gabapentin compared with placebo in adults who have a variety of conditions, including diabetic peripheral neuropathy and postherpetic neuralgia.
- For short-term treatment of painful diabetic neuropathy and postherpetic neuralgia, gabapentin may be as effective as tricyclic antidepressants, serotonin-norepinephrine reuptake inhibitors, or pregabalin (based on indirect evidence).
- There is limited evidence for the effect of gabapentin on other NP conditions including: chronic lower back pain, fibromyalgia, mixed NP, trigeminal neuralgia, nerve injury pain, and HIV-associated neuropathy. Further high-quality studies would reduce uncertainty regarding the effectiveness of gabapentin for those indications.
- Generally, adverse events were numerically higher with gabapentin compared with placebo, and serious adverse events were few and comparable between the two groups. Adverse events included somnolence, fatigue, drowsiness, dizziness, peripheral edema, and gait disturbances.
- Gabapentin has been used as a recreational drug, and the prevalence of abuse has been described as higher among current opioid users. There is an absence of high-quality data on the prevalence and risk of misuse among patients prescribed the drug to manage NP.
- UK guidelines support the use of gabapentin as one of the first-line treatment options for the management of NP. US guidelines recommend gabapentin as an option for diabetic neuropathy.

Context

NP is complex and tends to be chronic. It develops as a result of damage to the nervous system and is characterized by when there is no stimulus or minor stimulus that causes more pain than what would be expected. Conditions such as spinal cord injury and multiple sclerosis may result in central NP, while examples of peripheral neuropathy include diabetic peripheral neuropathy and postherpetic neuralgia. NP is estimated to affect 6.9% to 10% of the general population. NP may be difficult to manage effectively and treatment often involves pharmacologic and physical therapies. Pharmacological management includes medications such as anticonvulsants, antidepressants, and serotonin-norepinephrine reuptake inhibitors. Patients generally do not respond to nonsteroidal anti-inflammatory drugs and resistance to opioid analgesics is common and thus not recommended.

Technology

Gabapentin, an anticonvulsant drug originally developed for the treatment of epilepsy, is used off-label for treating NP in Canada. Its mechanism of action is through binding to calcium channels and modulating calcium influx, resulting in antiepileptic, analgesic, and sedative effects. It is also suggested that gabapentin acts by blocking new synapse formation. Gabapentin is available in various dosages and formulations.

Issue

Gabapentin has been used off-label for the treatment of NP in Canada. Gabapentin's efficacy and safety compared with other interventions or placebo for NP needs to be examined. There is evidence that in high doses, gabapentin may be associated with sedative and dissociative or psychedelic effects. There is also potential for misuse.

A review of the clinical evidence on the efficacy, safety, and abuse or misuse of gabapentin, as well as a review of the guidelines for the use of gabapentin in adults with NP, will help inform treatment decisions.

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Methods

A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed for the four reports addressing the effectiveness and efficacy of gabapentin for the management of NP. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs). For the report regarding the misuse of gabapentin, a limited literature search was performed; summarized abstracts of articles potentially meeting the pre-specified inclusion criteria were reviewed.

Results

The clinical evidence on gabapentin for NP was summarized from five reports published between 2014 and 2018. In total, the five reports reviewed 32 publications: 17 systematic reviews, three randomized controlled trials, 10 non-randomized studies, and two guidelines.

Read more about CADTH and its reviews of gabapentin for neuropathic pain:

CADTH has produced four reports on the use of gabapentin for adults with NP and one report on gabapentin's misuse.

1. Gabapentin for Adults With Neuropathic Pain: A Review of the Clinical Evidence and Guidelines (September 2014; https://cadth.ca/gabapentin-adults-neuropathic-pain-review-clinical-evidence-and-guidelines).
2. Gabapentin for Adults With Neuropathic Pain: A Review of the Clinical Efficacy and Safety (April 2015; https://cadth.ca/gabapentin-adults-neuropathic-pain-review-clinical-efficacy-and-safety-0).
3. Gabapentin for HIV-associated Neuropathic Pain: A Review of the Clinical Effectiveness (January 2016, https://cadth.ca/gabapentin-hiv-associated-neuropathic-pain-review-clinical-effectiveness)
4. Abuse and Misuse of Gabapentin: Clinical Evidence, Safety, and Guidelines (October 2017, https://www.cadth.ca/abuse-and-misuse-gabapentin-clinical-evidence-safety-and-guidelines-0).
5. Gabapentin for Adults with Neuropathic Pain: A Review of the Clinical Effectiveness. (March 2018; https://www.cadth.ca/gabapentin-adults-neuropathic-pain-review-clinical-effectiveness-0).

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February 2019

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