Carbamazepine for Acute and Chronic Pain in Adults

Nerys Brick, MSc (Renal), BSc (Hons), PGCLT(HE) NMC, RN

Review Question
To evaluate the analgesic efficacy and adverse effects of carbamazepine for acute and chronic pain management (excluding headaches).

Type of Review
This is a Cochrane review containing 15 randomized, controlled trials (RCTs). Meta-analysis was undertaken when appropriate data were available.

Relevance for Nursing
Anticonvulsant drugs are used to treat epilepsy, but some evidence has shown efficacy in treating various types of neuropathic pain. Various studies have shown carbamazepine (an anticonvulsant drug) to be effective in phantom limb pain, diabetic neuropathy, facial pain, and postsurgical pain. The use of anticonvulsant drugs, however, is not without risk; serious adverse effects include deaths from hematologic reactions. The most common adverse effect is impaired mental and motor function.

Characteristics of the Evidence
The review included 15 RCTs (12 crossover design and three parallel-group) and a total of 629 participants. All studies needed to have investigated the analgesic effects of carbamazepine in patients (any adults who were suffering from a wide range of neuropathic pains), with pain assessment as either the primary or secondary outcome. Carbamazepine could be administered in any dose or by any route.

Carbamazepine was compared with placebo or active control. Of the 629 participants, 447 were receiving carbamazepine. A wide range of carbamazepine doses were used, ranging from 100–2,400 mg daily. Studies ranged from two-three-day crossover comparisons to 42 months. Studies were generally four weeks or shorter with only two eight-week studies lasting more than four weeks.

Only one study had been published in the past 10 years. Because of this and issues with risk of bias (randomization, allocation concealment, and blinding) plus the predominance of crossover trials, which are a possible source of additional bias, caution is needed in the interpretation of the data.

Summary of Key Evidence
Relatively few studies are included in this review. They were all small, outdated, and suffered from methodologic and reporting quality that is considered largely inadequate.

Carbamazepine appears to be effective for some patients in the short term in trigeminal neuralgia and diabetic neuropathy.

Eight studies looked at the use of carbamazepine in the treatment of trigeminal neuralgia. Five were placebo-controlled, whereas the other three studies compared carbamazepine with tizanidine, tocainide, and pimozide. Carbamazepine produced better results over three weeks than tizanidine; no significant difference was seen between carbamazepine and tocainide over two weeks, and pimozide produced better results over carbamazepine at eight weeks. Pooled data from three studies indicated carbamazepine was more beneficial than placebo (relative benefit = 5.9).

Four studies evaluated the effects of carbamazepine in diabetic neuropathy. Two placebo-controlled studies demonstrated that participants either found improved pain control with carbamazepine or preferred taking carbamazepine against a placebo. The other two studies were active controlled studies. One study compared carbamazepine 200 mg with nortriptyline 10 mg plus fluphenazine 0.5 mg combination over four weeks and found no significant difference in pain or paresthesia. The other study compared venlafaxine with carbamazepine over 12 weeks. Both drugs demonstrated effect with venlafaxine showing a larger mean effect.

Four percent of participants (12 of 323 participants; nine studies) discontinued the study because of adverse events of taking carbamazepine. An additional 16 participants discontinued because of adverse effects from a combination of carbamazepine and clomipramine. Serious adverse events were not reported consistently in
the reviews. Only one study reported an adverse event as serious and that was an upper gastrointestinal bleed; however, that was believed to be related to alcohol rather than carbamazepine. Although five deaths were reported on carbamazepine, they were not related to the taking of the drug.

The review did not state the numbers of studies experiencing specific adverse events, but the incidence of giddiness, dizziness, unsteadiness, and somnolence was high (> 10%). The incidence of somnolence and dizziness was as high as 40%–60% on carbamazepine.

Best Practice Recommendations

Evidence was insufficient to compare carbamazepine with other treatments.

Carbamazepine generally provided better pain relief than placebo in adults with chronic neuropathic pain conditions such as trigeminal neuralgia and painful diabetic neuropathy.

No evidence was found to support the use of carbamazepine in established acute pain.

Although the review demonstrated that the use of carbamazepine produced good levels of pain relief, the applicability of the evidence should be examined because of limited sample size, age of studies, the short duration of studies, and inadequate outcomes with inconsistent reporting of issues such as adverse events.

Research Recommendations

There is a need to undertake larger, higher quality, longer duration studies with consistent outcomes and improvements in reporting to establish relative effectiveness of different anticonvulsants in chronic pain syndromes.

Author Contact: Nerys Brick, MSc (Renal), BSc (Hons), PGCLT (HE) NMC, RN, can be reached at nerys.brick@canterbury.ac.uk, with copy to editor at CJONEditor@ons.org.

Bibliography


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