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Cochrane Database of Systematic Reviews 2011, Issue 1. Art. No.: CD005451.
DOI: 10.1002/14651858.CD005451.pub2.

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[Intervention Review]

Carbamazepine for acute and chronic pain in adults

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Editorial group: Cochrane Pain, Palliative and Supportive Care Group.
Publication status and date: Stable (no update expected for reasons given in 'What's new'), published in Issue 8, 2012.

Citation: Wiffen PJ, Derry S, Moore RA, McQuay HJ. Carbamazepine for acute and chronic pain in adults. *Cochrane Database of Systematic Reviews* 2011, Issue 1. Art. No.: CD005451. DOI: 10.1002/14651858.CD005451.pub2.

ABSTRACT

Background

Carbamazepine is used to treat chronic neuropathic pain.

Objectives

Evaluation of analgesic efficacy and adverse effects of carbamazepine for acute and chronic pain management (except headaches).

Search methods

Randomised controlled trials (RCTs) of carbamazepine in acute, chronic or cancer pain were identified, searching MEDLINE, EMBASE, SIGLE and Cochrane CENTRAL to June 2010, reference lists of retrieved papers, and reviews.

Selection criteria

RCTs reporting the analgesic effects of carbamazepine.

Data collection and analysis

Two authors independently extracted results and scored for quality. Numbers needed to treat to benefit (NNT) or harm (NNH) with 95% confidence intervals (CI) were calculated from dichotomous data for effectiveness, adverse effects and adverse event withdrawal. Issues of study quality, size, duration, and outcomes were examined.

Main results

Fifteen included studies (12 cross-over design; three parallel-group) with 629 participants.

Carbamazepine was less effective than prednisolone in preventing postherpetic neuralgia following acute herpes zoster (1 study, 40 participants). No studies examined acute postoperative pain.

Fourteen studies investigated chronic neuropathic pain: two lasted eight weeks, others were four weeks or less (mean 3 weeks, median 2 weeks). Five had low reporting quality. Ten involved fewer than 50 participants; mean and median maximum treatment group sizes were 34 and 29. Outcome reporting was inconsistent.

Most placebo controlled studies indicated that carbamazepine was better than placebo. Five studies with 298 participants provided dichotomous results; 70% improved with carbamazepine and 12% with placebo. Carbamazepine at any dose, using any definition of improvement was significantly better than placebo (70% versus 12% improved; 5 studies, 298 participants); relative benefit 6.1 (3.9 to 9.7),

NNT 1.7 (1.5 to 2.0). Four studies (188 participants) reporting outcomes equivalent to 50% pain reduction or more over baseline had a similar NNT.

With carbamazepine, 66% of participants experienced at least one adverse event, and 27% with placebo; relative risk 2.4 (1.9 to 3.1), NNH 2.6 (2.1 to 3.5). Adverse event withdrawals occurred in12 of 323 participants (4%) with carbamazepine and 0 of 310 with placebo. Serious adverse events were not reported consistently; rashes were associated with carbamazepine. Five deaths occurred in patients on carbamazepine, with no obvious drug association.

Authors' conclusions

Carbamazepine is effective in chronic neuropathic pain, with caveats. No trial was longer than four weeks, of good reporting quality, using outcomes equivalent to at least moderate clinical benefit. In these circumstances, caution is needed in interpretation, and meaningful comparison with other interventions is not possible.

PLAIN LANGUAGE SUMMARY

Carbamazepine (an anticonvulsant medicine) for acute and chronic pain

Carbamazepine is effective for relieving chronic pain caused by damage to nerves, either from injury or disease, although the data available to support this is limited. Anticonvulsants (also known as antiepileptics) are a group of medicines commonly used for treating 'fits' or epilepsy, but which are also effective for treating pain. The type of pain which responds well is neuropathic pain, e.g., postherpetic neuralgia (persistent pain experienced in an area previously affected by shingles), trigeminal neuralgia, and painful complications of diabetes. About two-thirds of patients who take carbamazepine for neuropathic pain can expect to achieve good pain relief in the short term, and two thirds can expect to experience at least one adverse event.