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*Cochrane Database of Systematic Reviews* 2008, Issue 4. Art. No.: CD004233.
DOI: 10.1002/14651858.CD004233.pub2.

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[Intervention Review]

# Single dose oral celecoxib for acute postoperative pain in adults

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**Editorial group:** Cochrane Pain, Palliative and Supportive Care Group.
**Publication status and date:** Edited (no change to conclusions), published in Issue 11, 2010.

**Citation:** Derry S, Barden J, McQuay HJ, Moore RA. Single dose oral celecoxib for acute postoperative pain in adults. *Cochrane Database of Systematic Reviews* 2008, Issue 4. Art. No.: CD004233. DOI: 10.1002/14651858.CD004233.pub2.



## ABSTRACT

### Background

This is an update of a review published in *The Cochrane Library,* Issue 1, 2003. Celecoxib is a selective cyclo-oxygenase-2 (COX-2) inhibitor prescribed for the relief of chronic pain in osteoarthritis and rheumatoid arthritis. Celecoxib is believed to be associated with fewer upper gastrointestinal adverse effects than conventional non-steroidal anti-inflammatory drugs (NSAIDs). Its effectiveness in acute pain was demonstrated in the earlier review. Additional studies have now been published for the 400 mg dose, and this updated review provides more robust estimates of efficacy and harm.

### Objectives

Assess analgesic efficacy and adverse effects of a single oral dose of celecoxib for moderate to severe postoperative pain.

### Search methods

Cochrane CENTRAL, MEDLINE, EMBASE, and the Oxford Pain Database. Most recent search: July 2008.

### Selection criteria

Randomised controlled trials (RCTs) of adults prescribed any dose of oral celecoxib or placebo for acute postoperative pain were included.

### Data collection and analysis

Eight studies (1380 participants) met the inclusion criteria. Studies were assessed for quality and data extracted by two review authors. Summed pain relief (TOTPAR) or pain intensity difference (SPID) was converted into dichotomous information yielding the number of participants with at least 50% pain relief over four to six hours, and used to calculate the relative benefit (RB) and number-needed-to-treat-to-benefit (NNT) for one patient to achieve at least 50% pain relief with celecoxib who would not have done so with placebo. Information on use of rescue medication was used to calculate the proportion of participants requiring rescue medication and the weighted mean (WM) of the median time to use.

### Main results

The NNT for celecoxib 200 mg and 400 mg compared with placebo for at least 50% pain relief over four to six hours was 4.2 (CI 3.4 to 5.6) and 2.5 (2.2 to 2.9) respectively. The WM of the median time to use of rescue medication was 6.6 hours with celecoxib 200 mg, 8.4 with celecoxib 400 mg, and 2.3 hours with placebo. The WM proportion of participants requiring rescue medication over 24 hours was 74% with celecoxib 200 mg, 63% for celecoxib 400 mg, and 91% for placebo. The NNT to prevent one patient using rescue medication was 4.8 (3.5 to 7.7) and 3.5 (2.9 to 4.6) for celecoxib 200 mg and 400 mg respectively. One serious adverse event probably related to celecoxib was reported by the trialists.

**Authors' conclusions**

Single dose oral celecoxib is an effective means of postoperative pain relief. The 400 mg dose has similar efficacy to ibuprofen 400 mg.

## PLAIN LANGUAGE SUMMARY

**Single dose oral celecoxib for postoperative pain**

Celecoxib was one of the first of the new generation of non-steroidal anti-inflammatory drugs (NSAIDs) known as Cox-2 inhibitors. Compared with conventional NSAIDs celecoxib has fewer gastrointestinal side effects with long-term use. It is used for the relief of chronic pain caused by osteoarthritis and rheumatoid arthritis. This review examined the efficacy of celecoxib in relieving acute pain. Eight trials provided data. A 200 mg dose of celecoxib was at least as effective as aspirin 600/650 mg and paracetamol (acetaminophen) 1000 mg for relieving postoperative pain, while a 400 mg dose was at least as effective as ibuprofen 400 mg. Adverse events occurred at a similar rate with celecoxib and placebo. One serious adverse event (rhabdomyolysis - muscle breakdown) was probably related to celecoxib. Withdrawals due to adverse events were few and occurred at similar rates with celecoxib and placebo.