Cochrane Clinical Answers

Question:

How do over-the-counter analgesics compare in adults with acute postoperative pain?

Jane Burch, Agustín Ciapponi

https://doi.org/10.1002/cca.2332 | **10 December 2018**

Answer

In adults, ibuprofen 400 mg plus paracetamol 1000 mg seems to effectively reduce pain after surgery without a concomitant increase in adverse events; reviewers rated the evidence as good quality.

Reviewers conducted an overview of Cochrane Reviews that assessed the impact of analgesics available over the counter in the UK on acute postoperative pain in adults. Researchers compared each analgesic with placebo and calculated the number needed to treat for one additional person to have a beneficial outcome (NNTB). In terms of achieving at least 50% pain relief, aspirin 500 mg was no better than placebo. Of the other analgesics assessed, the lowest NNTB was for ibuprofen 400 mg plus paracetamol 1000 mg (NNTB 1.5; all values on average); the remaining analgesics had NNTBs from 1.6 (ibuprofen 200 mg plus paracetamol 500 mg) to 4.6 (paracetamol 600/650 mg). Success of pain relief ranged from 11% (with

aspirin 500 mg) to 70% (with 400 mg ibuprofen plus 1000 mg paracetamol). Three analgesics showed higher rates of adverse events versus placebo (aspirin 600/650 mg and 1000 mg and ibuprofen 200 mg plus caffeine 100 mg), and two analgesics showed lower rates of adverse events (ibuprofen 200 or 400 mg plus paracetamol 500 or 1000 mg, respectively).

Comparisons

1. Over-the-counter analgesia versus placebo

Expand All »

› **OUTCOME 1.1 ≥ 50% maximum pain relief over four to six hours**

Narrative result

Aspirin 500 mg was no better than placebo. All other analgesics had an average number needed to treat for one additional person to achieve at least a 50% reduction in pain between 1.5 and 4.6.[1]

Quality of the evidence

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Reviewers classified the quality of the evidence as good, with systematic reviews using standardized methodology and validated methods for conversion of mean to dichotomous data and imputation methods. Reviewers stated that the overview process further removed any results likely to be the object of potential publication bias, so that only reliable results remained, and that there were no obvious biases in the overview process. See main text of the Cochrane Review

Relative effect or mean difference

Number needed to treat (NNT) for one additional person to achieve at least a 50% reduction in pain (95% CIs) (table reproduced from the Cochrane Review):

Reference

Moore RA, Wiffen PJ, Derry S, Maguire T, Roy YM, Tyrrell L. Non-prescription (OTC) oral analgesics for acute pain - an overview of Cochrane reviews. *Cochrane Database of Systematic Reviews* 2015, Issue 11. Art. No.: CD010794. DOI: 10.1002/14651858.CD010794.pub2. Search date May 2015

OUTCOME 1.2 Successful pain relief

Narrative result

Success ranged from 11% (with aspirin 500 mg) to 70% (with 400 mg ibuprofen plus 1000 mg paracetamol). Successful pain relief was calculated by taking the proportion of participants who achieve good pain relief (not defined) with analgesic and subtracting the proportion who achieve good pain relief with placebo, then expressing this as a percentage of the maximum possible success rate (100-response with placebo).[2]

Quality of the evidence

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Reviewers classified the quality of the evidence as good, with systematic reviews using standardized methodology and validated methods for conversion of mean to dichotomous data and imputation methods. Reviewers stated that the overview process further removed any results likely to be the object of potential publication bias, so that only reliable results remained, and that there were no obvious biases in the overview process. See main text of the Cochrane Review

Relative effect or mean difference

Success rate for each over-the-counter drug (table reproduced from the Cochrane Review):

Reference

Moore RA, Wiffen PJ, Derry S, Maguire T, Roy YM, Tyrrell L. Non-prescription (OTC) oral analgesics for acute pain - an overview of Cochrane reviews. *Cochrane Database of Systematic Reviews* 2015, Issue 11. Art. No.: CD010794. DOI: 10.1002/14651858.CD010794.pub2. Search date May 2015

OUTCOME 1.3 Adverse events

Narrative result

Included reviews reported the number of participants who experienced at least one adverse event, such as headache, nausea, or dizziness. Most studies involving single doses showed no differences between the analgesic and placebo. Aspirin 1000 mg and ibuprofen 200 mg plus caffeine 100 mg both had higher adverse event rates than placebo. For aspirin 1000 mg the number needed to treat for one additional person to experience an adverse event was 7.5. For 200 and 400 mg ibuprofen plus 500 and 1000 mg paracetamol, respectively, adverse event rates were lower with analgesic combination than placebo. The number needed to treat to prevent one more adverse event was approximately 5. Serious adverse events were rare; four with ibuprofen, one with naproxen and four for placebo.[3]

Quality of the evidence

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Reviewers classified the quality of the evidence as good, with systematic reviews using standardized methodology and validated methods for conversion of mean to dichotomous data and imputation methods. Reviewers stated that the overview process further removed any results likely to be the object of potential publication bias, so that only reliable results remained, and that there were no obvious biases in the overview process. See main text of the Cochrane Review

Relative effect or mean difference

Risk ratios (95% CIs) for each drug compared with placebo (table reproduced from the Cochrane Review):

Reference

Moore RA, Wiffen PJ, Derry S, Maguire T, Roy YM, Tyrrell L. Non-prescription (OTC) oral analgesics for acute pain - an overview of Cochrane reviews. *Cochrane Database of Systematic Reviews* 2015, Issue 11. Art. No.: CD010794. DOI: 10.1002/14651858.CD010794.pub2. Search date May 2015

Population, Intervention, Comparator

Population

Cochrane Reviews included RCTs investigating analgesics or analgesic combinations available in the UK as single oral doses in adults (≥ 15 years) with acute postoperative pain were selected. Cochrane Reviews of migraine, tension headache or menstrual pain were not included

Intervention

Oral over-the-counter analgesic: results are reported for aspirin (250 to 500 mg), dexketoprofen (12.5 to 25 mg), diclofenac (12.5 to 50 mg), ibuprofen or ibuprofen fast acting (200 to 400 mg), naproxen (220 to 550 mg), paracetamol (200 to 1000 mg), combined ibuprofen with paracetamol or caffeine (15 to 100 mg)

Comparator

Placebo (used as a common comparator to allow indirect comparisons of active treatments to be made)

Additional Information

DOI:

https://doi.org/10.1002/cca.2332 scolaris.information.information.copy.clipboard

First Published:

10 December 2018

CCA Associate editor: Jane Burch (PhD), Editor, CEU, London, UK.

CCA Associate editor: Agustín Ciapponi (MD, MSc), Family Physician - Researcher, Hospital Italiano de Buenos Aires- Instituto de Efectividad Clínica y Sanitaria (IECS), Buenos Aires, Argentina.

Contact the CCA team at clinicalanswers@cochrane.org.