Review: no evidence exists that paracetamol and ibuprofen differ for short term pain relief or safety in children, but ibuprofen more effectively reduces fever


What is the relative effectiveness and safety of paracetamol (acetaminophen) and ibuprofen for short term treatment of pain and fever in children?

METHODS

Data sources: Medline, CINAHL, EMBASE/Excerpta Medica, Cochrane Library, Biological Abstracts, Biological Abstracts/ RRM, Dissertation Abstracts International, Evidence-Based Medicine Reviews (EBMR) Best Evidence, EBMR Database of Abstracts of Reviews of Effectiveness, ERIC, Expanded Academic ASAP, General Science Abstracts, Health Reference Center Academic, Health Source Plus, Health Star, Oxford Pain Relief Database, Psycinfo, and Web of Science (all from inception to May 2002); bibliographies of relevant articles; websites; text books; and 4 key medical journals.

Study selection and assessment: randomised controlled trials (RCTs) of participants <18 years of age who were receiving either ibuprofen or paracetamol for fever or moderate to severe pain. Study exclusion criteria included use of previous or concurrent medication that could be a potential confounder.

Outcomes: pain, fever, and safety (minor or major harm). Minor harm was defined as the occurrence of an adverse event not leading to withdrawal from the study. Major harm was defined as the occurrence of an adverse event leading to withdrawal from the study.

MAIN RESULTS

17 RCTs (n = 1820) met the selection criteria. Most trials used single doses of 10 mg/kg of each drug and a double blind design. Meta-analysis was done using a fixed effects model. Meta-analysis of 3 trials of children with pain after dental extraction or sore throat pain showed that ibuprofen 4–10 mg/kg did not differ for short term pain relief (table). Meta-analysis of 17 trials showed that ibuprofen and paracetamol did not differ for incidences of minor or major harm (table). Meta-analysis of 10 trials that examined single doses of ibuprofen (5–10 mg/kg) and paracetamol (10–15 mg/kg) for fever showed that ibuprofen was more effective than paracetamol for reducing fever (table).

CONCLUSIONS

No evidence exists that paracetamol and ibuprofen differ for short term safety or relief of moderate to severe pain in children. Ibuprofen reduces fever more effectively than paracetamol.

Ibuprofen vs paracetamol for short term treatment of pain or fever in children*

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Number of trials (n)</th>
<th>Weighted RR point estimate [95% CI]¹</th>
<th>Weighted effect size point estimate [CIE]²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain relief at 2 hours</td>
<td>3 (186)</td>
<td>1.14 [0.82 to 1.58]</td>
<td></td>
</tr>
<tr>
<td>Pain relief at 4 hours</td>
<td>3 (186)</td>
<td>1.11 [0.89 to 1.38]</td>
<td></td>
</tr>
<tr>
<td>Minor harm at median 48 hours</td>
<td>17 (1820)</td>
<td>0.96 [0.68 to 1.36]</td>
<td></td>
</tr>
<tr>
<td>Major harm at median 48 hours</td>
<td>17 (1813)</td>
<td>1.00 [0.55 to 1.82]</td>
<td></td>
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</tbody>
</table>

*RR = relative risk; CI = confidence interval.

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