Ibuprofen and acetaminophen reduced pain in children with migraine headache


Objective
To determine whether ibuprofen or acetaminophen reduces pain, compared with placebo, in children with acute migraine headaches.

Design
4-month randomised, double-blind, placebo-controlled, cross-over trial.

Setting
3 paediatric hospitals in Finland.

Patients
106 children were enrolled, and 88 (mean age 11 y) were studied. Inclusion criteria were history of migraine headaches (International Headache Society criteria), ≥ 2 headaches/mo lasting ≥ 2 hours, ability to use a headache diary, and previous unsuccessful treatment. Exclusion criteria were a history of renal, hepatic, or cardiovascular disease; coagulation deficits; severe allergies or asthma; drug allergies; need for other headache treatments; or continuous daily oral medication.

Commentary
This well-designed study confirms the efficacy of ibuprofen and acetaminophen for children with migraine headache. Although very few studies of symptomatic medication for migraine in children exist, the results for ibuprofen in this trial are comparable with the results found for subcutaneous sumatriptan in an open-label study of children (1).

Certain limitations of the study should be noted: The mean headache severity and the presence of nausea or vomiting were not reported. Are these treatments effective for severe episodes or only for milder ones without nausea or vomiting? Headache relapse was not systematically analysed: Relapse is an important issue for all headache remedies. Interestingly, no drug preference was shown by patients who took all 3 treatments.

Intervention
Children were given ibuprofen, 20 mg/mL; acetaminophen, 30 mg/mL; and placebo as syrup solutions. When their next 3 headaches occurred, one medication was taken with each occurrence in a weight-based dosing regimen (0.5 mL/kg of body weight, maximum 30 mL) in random order. Rescue medication was allowed. 78 headaches were treated with ibuprofen, 80 with acetaminophen, and 78 with placebo.

Main results
Ibuprofen and acetaminophen were both more effective than placebo (P = 0.02 and 0.05, respectively) at reducing pain at 2 hours but did not differ from each other (P = 0.7) (Table). Results were similar when pain was assessed at 1 hour. The groups did not differ for adverse events.

Conclusions
Both ibuprofen and acetaminophen reduced pain in children with recurrent acute migraine headaches. Their benefits were similar.

Ibuprofen or acetaminophen for migraine headache*

<table>
<thead>
<tr>
<th>Outcomes at 2 hours</th>
<th>Active drug</th>
<th>Placebo</th>
<th>RBI (95% CI)</th>
<th>ABI (EER – CER)</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction in pain ≥ 2 units</td>
<td>56%</td>
<td>36%</td>
<td>57%</td>
<td>20%</td>
<td>5</td>
</tr>
<tr>
<td>Reduction in pain ≥ 2 units (for ibuprofen)</td>
<td>53%</td>
<td>36%</td>
<td>46%</td>
<td>17%</td>
<td>6</td>
</tr>
</tbody>
</table>

*Abbreviations defined in Glossary; RBI, ABI, NNT, and CI calculated from data in article.

Migraine in children is underdiagnosed: It occurs in 2.5% of children by age 7 to 9 and increases to 5% in girls after puberty. This adds evidence to the role of sex hormones in migraine. The criteria of the International Headache Society require modification for children because their migraine headaches may not be unilateral or throbbing in nature and may last only 1 or 2 hours. Some experts consider any paroxysmal and recurrent headache in a child, with full recovery in between, to be migraine (2).

Management of headaches in children must include parental reassurance and attention to headache triggers, including family discord and depression in the child. Most headaches in children can be treated with rest and over-the-counter medication, such as acetaminophen or ibuprofen; aspirin is not used because of the risk for Reye’s syndrome. Higher doses (15 to 20 mg/kg) of ibuprofen should be studied to see whether results improve.

References