**Review: Intravenous metoclopramide is better than placebo for reducing pain in acute migraine in the emergency department**


**Question**
In patients with acute migraine, is metoclopramide more effective than a control intervention for reducing symptoms?

**Methods**
Data sources: MEDLINE, EMBASE/Excerpta Medica, LILACS, CINAHL, and the Cochrane Central Register of Controlled Trials; neurology, headache, and emergency medicine conference proceedings (1998 to 2004); clinical practice guidelines for the management of acute migraine; hand-searching Web sites, theses or dissertations, and the bibliographies of relevant studies; and contacting authors and experts in the field.

**Study selection and assessment:** Randomized controlled trials (RCTs) that compared parenteral metoclopramide with control (placebo, other antiemics [AEs], non-AEs, or other antimigraine [AM] regimens) in adults with an acute migraine, distinguished migraine from other types of headaches, and were done in an emergency department (ED) or headache clinic. Study quality was assessed using the 5-point Jadad scale.

**Outcomes:** Complete relief of headache, significant reduction in headache pain, and reduction in headache pain on the basis of a 10-cm visual analogue scale (VAS). Secondary outcomes included relapse of migraine within 48 hours of treatment, nausea, number of rescue drugs required, functional status, and adverse events.

**Main results**
13 RCTs (n = 655) met the selection criteria. 7 RCTs (54%) were high-quality (Jadad score ≥ 3). Through use of a random-effects model, meta-analysis of 3 RCTs showed that metoclopramide reduced headache pain (Table), nausea (odds ratio [OR] 4.20, 95% CI 1.70 to 10.36), and the need for rescue drugs (OR 0.21, CI 0.05 to 0.85) more than placebo. The groups did not differ for complete relief of headache (Table), relapse of migraine, or restlessness. 2 RCTs found that metoclopramide reduced headache pain less than other AEs (chlorpromazine and prochlorperazine) (Table). The groups did not differ for complete relief of headache (Table), pain scores on the VAS, relapse of migraine, nausea, or adverse events. Pooled results showed that patients in the metoclopramide groups were more likely to require rescue drugs than those in the other AE groups (OR 2.08, CI 1.04 to 4.17). Of the 2 RCTs that compared metoclopramide with non-AEs, 1 RCT showed no difference between metoclopramide and sumatriptan for complete relief of headache (Table), reduction in headache pain (Table), or nausea (OR 19.74, CI 1.00 to 390.32). In another RCT, metoclopramide reduced the need for rescue drugs more than ibuprofen (OR 0.05, CI 0.00 to 0.56). In studies comparing drug combinations, more patients achieved complete headache relief with metoclopramide combination than other AM regimens (Table).

**Conclusions**
In patients with acute migraine, metoclopramide reduces headache pain more than placebo. Compared with other single agents, metoclopramide shows variable effectiveness for other migraine symptoms.

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**Table:**

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Number of trials (n)</th>
<th>Comparisons</th>
<th>Weighted event rates</th>
<th>RBI (95% CI)</th>
<th>NNT (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction in headache pain</td>
<td>3 (185)</td>
<td>Metoclopramide vs placebo</td>
<td>56% vs 31%</td>
<td>80% (1 to 221)</td>
<td>4 (3 to 44)</td>
</tr>
<tr>
<td><strong>Comparison of efficacy</strong></td>
<td></td>
<td><strong>Odds ratio (CI)</strong></td>
<td></td>
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<tr>
<td></td>
<td>2 (161)</td>
<td>Metoclopramide vs other AEs (chlorpromazine)</td>
<td>0.39 (0.18 to 0.87)</td>
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<tr>
<td></td>
<td>1 (40)</td>
<td>Metoclopramide vs non-AEs (prochlorperazine)</td>
<td>18.38 (0.96 to 352.59)</td>
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<tr>
<td>Complete relief of headache</td>
<td>1 (86)</td>
<td>Metoclopramide vs placebo</td>
<td>2.16 (0.36 to 12.94)†</td>
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<tr>
<td></td>
<td>2 (177)</td>
<td>Metoclopramide vs other AEs (chlorpromazine)</td>
<td>0.64 (0.23 to 1.76)†</td>
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<tr>
<td></td>
<td>1 (40)</td>
<td>Metoclopramide vs non-AEs (prochlorperazine)</td>
<td>2.27 (0.64 to 8.11)†</td>
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<tr>
<td></td>
<td>1 (62)</td>
<td>Combination metoclopramide vs other AEs (ibuprofen)</td>
<td>7.79 (1.79 to 33.86)</td>
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</tr>
</tbody>
</table>

*Abbreviations defined in Glossary, weighted event rates, RBI, NNT, and CI calculated from data in article using a random-effects model.
†Not significant.

Whether metoclopramide might outperform sumatriptan remains unanswered because the single study that reached this conclusion was low-quality and lacked a placebo group. Some evidence supports the use of oral metoclopramide for acute migraine (1); however, the FDA recently rejected an application for an oral sumatriptan–metoclopramide combination product, stating concerns about long-term safety (2). This should temper enthusiasm for wide-scale use of metoclopramide.

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**References**