

PLAIN LANGUAGE SUMMARIES AND ABSTRACTS OF IMPORTANT RESEARCH ARTICLES

TOPIC: CHILD HEALTH

COCHRANE CORNER is being published in KMJ to offer some useful reading material for our readers regarding new research in medical fields. Here, one may find a very high quality research by Cochrane Network, presented as *plain language summary and abstracts* on topics of public interest. In this issue, we will look at some important studies regarding common issues of child health. (Editor)

1: *Antiemetics for Reducing Vomiting Related To Acute Gastroenteritis in Children and Adolescents*

Fedorowicz Z, Jagannath VA, Carter B

PLAIN LANGUAGE SUMMARY

Anti-sickness medication for vomiting in acute stomach upsets in children

Vomiting caused by acute gastroenteritis is very common in children and adolescents. Treatment of vomiting in children with acute gastroenteritis can be problematic and there is lack of agreement among clinicians on the indications for the use of antiemetics. There have also been concerns expressed about apparently unacceptable levels of side effects with some of the older generation of antiemetics. The small number of included trials provided evidence which appeared to favour the use of antiemetics over placebo to reduce the number of episodes of vomiting due to gastroenteritis in children. A single oral dose of ondansetron given to children with mild to moderate dehydration can control vomiting, avoid hospitalization and intravenous fluid administration which would otherwise be needed. There were no major side effects other than a few reports of increased frequency of diarrhea.

ABSTRACT

Background: Vomiting is a common manifestation of acute gastroenteritis in children and adolescents. When untreated it can be a hindrance to oral rehydration therapy, which is the cornerstone in the management of acute gastroenteritis. Evidence is needed concerning the safety and efficacy of antiemetic use for vomiting in acute gastroenteritis in children.

Objectives: To assess the safety and effectiveness of antiemetics on gastroenteritis induced vomiting in children and adolescents.

Search strategy: We searched the Cochrane Upper Gastrointestinal and Pancreatic Diseases Group Trials

Register comprising references identified from comprehensive electronic database searches and hand searches of relevant journals and abstract books of conferences. The search was re-run and is up to date as on 20 July 2010.

Selection criteria: Randomized controlled trials comparing antiemetics with placebo or no treatment, in children and adolescents under the age of 18, for vomiting due to gastroenteritis.

Data collection and analysis: Two review authors independently assessed trial quality and extracted data.

Main results: We included seven trials involving 1,020 participants. Mean time to cessation of vomiting in one study was 0.34 days less with dimenhydrinate suppository compared to placebo (P value = 0.036). Pooled data from three studies comparing oral ondansetron with placebo showed: a reduction in the immediate hospital admission rate (RR 0.40, NNT 17, 95% CI 10 to 100) but no difference between the hospitalization rates at 72 hours after discharge from the Emergency Department (ED); a reduction in IV rehydration rates both during the ED stay (RR 0.41, NNT 5, 95% CI 4 to 8), and in follow-up to 72 hours after discharge from the ED stay (worst-best scenario for ondansetron RR 0.57, NNT 6, 95% CI 4 to 13) and an increase in the proportion of patients with cessation of vomiting (RR 1.34, NNT 5, 95% CI 3 to 7)). No significant difference was noted in the revisit rates or adverse events, although diarrhea was reported as a side effect in four of the five ondansetron studies. In one study the proportion of patients with cessation of vomiting in 24 hours was (58%) with IV ondansetron, (17%) placebo and (33%) in the metoclopramide group (P value = 0.039).

Authors' conclusions: Oral ondansetron increased the proportion of patients who had ceased vomiting and reduced the number needing intravenous rehydration and immediate hospital admission. Intravenous ondansetron and metoclopramide reduced the number of episodes of vomiting and hospital admission, and dimenhydrinate as a suppository reduced the duration of vomiting.

Fedorowicz Z, Jagannath VA, Carter B. Antiemetics for reducing vomiting related to acute gastroenteritis in children and adolescents. Cochrane Database of Systematic Reviews 2011, Issue 9. Art. No.: CD005506. DOI: 10.1002/14651858.CD005506.pub5

2: Honey and lozenges for children with non-specific cough

Mulholland S, Chang AB

PLAIN LANGUAGE SUMMARY

Symptomatic relief is often sought for children with chronic non-specific cough (which is defined as a dry, non-productive cough with no known cause lasting longer than four consecutive weeks). This review aimed to assess the efficacy of treating children with such coughs using honey or lozenges, as these options are inexpensive. No randomised controlled trials were found to be applicable to this review, primarily due to the participants in the studies not fulfilling the inclusion criteria. However, studies on the efficacy of these treatments in treating acute cough in children showed that honey has the potential to be beneficial in children over a year old. Further research evaluating the efficacy of honey and lozenges in treating chronic non-specific coughs in children is needed.

ABSTRACT

Background: Chronic non-specific cough is a chronic, dry cough of in the absence of identifiable respiratory disease or known aetiology. Although it is usually not reflective of an underlying severe illness, it does cause significant morbidity, and as such relief from it is often sought. The use of honey and lozenges to soothe upper respiratory tract irritation is common, inexpensive, and potentially more effective in treating the symptoms than pharmacological interventions.

Objectives: To evaluate the efficacy of honey and/or lozenges in the management of children with chronic non-specific cough.

Search strategy: The Cochrane Airways Group searched the Cochrane Register of Controlled Trials (CENTRAL), MEDLINE, OLDMEDLINE, and EMBASE databases in October 2010.

Selection criteria: All randomised controlled trials comparing honey or lozenges with a placebo in treating children with chronic non-specific cough.

Data collection and analysis: The results of the searches were assessed according to the pre-determined criteria. None of the trials identified by the searches were eligible for inclusion, leaving no data available for analysis in this review.

Main results: The search did not provide any applicable randomised controlled trials that investigated the efficacy of honey and lozenges in treating children with non-specific chronic cough. Data from acute studies suggest a potential role for honey in relieving cough, but whether this is applicable to chronic cough is unknown.

Authors' conclusions: Clinically, this review was unable to provide any justifiable recommendation for or

against honey and/or lozenges due to the lack of evidence. The absence of applicable studies highlights the need for further research into the area of treating children with chronic non-specific coughs with honey and/or lozenges. These treatments are not recommended when managing very young children (as lozenges are a potential choking hazard, and honey may cause infant botulism in children under one year of age).

Mulholland S, Chang AB. Honey and lozenges for children with non-specific cough. Cochrane Database of Systematic Reviews 2009, Issue 2. Art. No.: CD007523. DOI: 10.1002/14651858.CD007523.pub2

3: Drugs for preventing migraine headaches in children

Victor S, Ryan S.

PLAIN LANGUAGE SUMMARY

This systematic review evaluated studies of drug treatments for preventing migraine headaches in children. Twenty randomised controlled trials were included. Two studies showed a beneficial effect on the primary outcome measure, headache frequency. These were trials of the drugs propranolol and flunarizine. Nimodipine, timolol, papaverine, pizotifen, trazodone, L-5-hydroxytryptophan (L-5HTP), clonidine, metoclopramide, and domperidone showed no efficacy in reduction of frequency of attacks. Available studies on other commonly used drugs failed to meet our inclusion criteria. The quality of evidence available for the use of drug prophylaxis in paediatric migraine is poor. Studies have generally been small, with no planning of sample size, so that for many drugs, despite the negative findings of this review, we do not have conclusive evidence of 'no effect'. More research is needed on this important topic

ABSTRACT

Background: It has been estimated that about 10 per cent of children between 6 and 20 years of age suffer from migraine, and that children with migraine lose one and a half weeks more schooling per year than their peers. Prophylactic drugs can be prescribed when children suffer from frequent or disabling headaches.

Objectives: To describe and assess the evidence from controlled trials on the efficacy and tolerability of pharmacological agents taken on a regular basis to prevent the occurrence of migraine attacks and/or reduce the intensity of such attacks in children with migraine.

Search strategy: The Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, and EMBASE were searched from 1966 through 2002. Additional strategies for identifying trials included searching the reference lists of review articles and included studies and searching books related to headache.

Selection criteria: Prospective randomised controlled

trials (RCTs) of self- or parent-administered drug treatments in children (under 18 years of age) who had received a diagnosis of migraine were included.

Data collection and analysis: Two investigators extracted, assessed, and coded separately all data for each study, using a form that was designed specifically for the review. Any disagreement was resolved by discussion. Headache frequency standardised over 28 days was used as the primary outcome measure. Headache intensity, headache duration, amount of symptomatic treatment used, and headache indices were used as secondary outcome measures. Data were extracted from both parallel-group and crossover trials. Continuous and dichotomous data were used to calculate standardised mean differences (SMDs) and odds ratios (ORs), respectively. Numbers-needed-to-treat (NNTs) and numbers-needed-to-harm (NNHs) were also calculated.

Main results: Thirty-eight studies were selected. Eighteen were excluded. Eleven preventive drugs were compared with placebo in a total of 15 studies. Drug-drug comparisons were made in just six studies. For only four drugs (L-5-hydroxytryptophan [L-5HTP], flunarizine, clonidine, and propranolol) were two or more studies selected. For only six drugs (trazodone, L-5HTP, propranolol, flunarizine, papaverine, and nimodipine) were data reported for effect on frequency. For no individual drug were comparable data reported in more than one study, thus meta-analysis was not possible. Two placebo-controlled studies showed a beneficial effect on the primary outcome measure, headache frequency. They were for the drugs propranolol and flunarizine. The propranolol study reported a dichotomous outcome (proportion of children responding), and it was possible to calculate a number-needed-to-treat to produce a two-thirds reduc-

tion in headache frequency (NNT = 1.5, 95%CI 1.15 to 2.1). The flunarizine study produced a SMD of 1.51 (95% confidence interval, -2.21 to -0.82), which was statistically significant in favour of flunarizine ($p < 0.001$). Nimodipine, timolol, papaverine, pizotifen, trazodone, L-5HTP, clonidine, metoclopramide, and domperidone showed no efficacy in reduction of frequency of attacks. The available studies on cyproheptadine, phenobarbitone, phenytoin, amitriptyline, carbamazepine, metoprolol, and piracetam were excluded for various reasons.

Authors' conclusions: Only one study each for propranolol and flunarizine were identified showing efficacy of these drugs as prophylactics of paediatric migraine. Nimodipine, timolol, papaverine, pizotifen, trazodone, L-5HTP, clonidine, metoclopramide, and domperidone showed no efficacy in reduction of frequency of attacks. Available studies on other commonly used drugs failed to meet our inclusion criteria. The quality of evidence available for the use of drug prophylaxis in paediatric migraine was poor. Studies were generally small, with no planning of sample size, so that for many drugs, despite the negative findings of this review, we do not have conclusive evidence of 'no effect'. There is a clear and urgent need for methodologically sound RCTs for the use of prophylactic drugs in paediatric migraine, starting with propranolol. These studies need to be adequately powered to investigate meaningful reductions in pain and suffering from a patient's perspective.

Victor S, Ryan S. Drugs for preventing migraine headaches in children. Cochrane Database of Systematic Reviews 2003, Issue 4. Art. No.: CD002761. DOI: 10.1002/14651858.CD002761

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