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Honey for acute cough in children (Review)

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[Intervention Review]

Honey for acute cough in children

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ABSTRACT

Background

Cough causes concern for parents and is a major cause of outpatient visits. Cough can impact quality of life, cause anxiety, and affect sleep in children and their parents. Honey has been used to alleviate cough symptoms. This is an update of reviews previously published in 2014, 2012, and 2010.

Objectives

To evaluate the effectiveness of honey for acute cough in children in ambulatory settings.

Search methods

We searched CENTRAL (2018, Issue 2), which includes the Cochrane Acute Respiratory Infections Group's Specialised Register, MEDLINE (2014 to 8 February 2018), Embase (2014 to 8 February 2018), CINAHL (2014 to 8 February 2018), EBSCO (2014 to 8 February 2018), Web of Science (2014 to 8 February 2018), and LILACS (2014 to 8 February 2018). We also searched ClinicalTrials.gov and the World Health Organization International Clinical Trial Registry Platform (WHO ICTRP) on 12 February 2018. The 2014 review included searches of AMED and CAB Abstracts, but these were not searched for this update due to lack of institutional access.

Selection criteria

Randomised controlled trials comparing honey alone, or in combination with antibiotics, versus no treatment, placebo, honey-based cough syrup, or other over-the-counter cough medications for children aged 12 months to 18 years for acute cough in ambulatory settings.

Data collection and analysis

We used standard methodological procedures expected by Cochrane.

Main results

We included six randomised controlled trials involving 899 children; we added three studies (331 children) in this update.

We assessed two studies as at high risk of performance and detection bias; three studies as at unclear risk of attrition bias; and three studies as at unclear risk of other bias.

Studies compared honey with dextromethorphan, diphenhydramine, salbutamol, bromelain (an enzyme from the Bromeliaceae (pineapple) family), no treatment, and placebo. Five studies used 7-point Likert scales to measure symptomatic relief of cough; one used an unclear 5-point scale. In all studies, low score indicated better cough symptom relief.

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Using a 7-point Likert scale, honey probably reduces cough frequency better than no treatment or placebo (no treatment: mean difference (MD) -1.05, 95% confidence interval (CI) -1.48 to -0.62; $I^2 = 0\%$; 2 studies; 154 children; moderate-certainty evidence; placebo: MD -1.62, 95% CI -3.02 to -0.22; $I^2 = 0\%$; 2 studies; 402 children; moderate-certainty evidence). Honey may have a similar effect as dextromethorphan in reducing cough frequency (MD -0.07, 95% CI -1.07 to 0.94; $I^2 = 87\%$; 2 studies; 149 children; low-certainty evidence). Honey may be better than diphenhydramine in reducing cough frequency (MD -0.57, 95% CI -0.90 to -0.24; 1 study; 80 children; low-certainty evidence).

Giving honey for up to three days is probably more effective in relieving cough symptoms compared with placebo or salbutamol. Beyond three days honey probably had no advantage over salbutamol or placebo in reducing cough severity, bothersome cough, and impact of cough on sleep for parents and children (moderate-certainty evidence). With a 5-point cough scale, there was probably little or no difference between the effects of honey and bromelain mixed with honey in reducing cough frequency and severity.

Adverse events included nervousness, insomnia, and hyperactivity, experienced by seven children (9.3%) treated with honey and two children (2.7%) treated with dextromethorphan (risk ratio (RR) 2.94, 95% CI 0.74 to 11.71; $I^2 = 0\%$; 2 studies; 149 children; low-certainty evidence). Three children (7.5%) in the diphenhydramine group experienced somnolence (RR 0.14, 95% CI 0.01 to 2.68; 1 study; 80 children; low-certainty evidence). When honey was compared with placebo, 34 children (12%) in the honey group and 13 (11%) in the placebo group complained of gastrointestinal symptoms (RR 1.91, 95% CI 1.12 to 3.24; $I^2 = 0\%$; 2 studies; 402 children; moderate-certainty evidence). Four children who received salbutamol had rashes compared to one child in the honey group (RR 0.19, 95% CI 0.02 to 1.63; 1 study; 100 children; moderate-certainty evidence). No adverse events were reported in the no-treatment group.

Authors' conclusions

Honey probably relieves cough symptoms to a greater extent than no treatment, diphenhydramine, and placebo, but may make little or no difference compared to dextromethorphan. Honey probably reduces cough duration better than placebo and salbutamol. There was no strong evidence for or against using honey. Most of the children received treatment for one night, which is a limitation to the results of this review. There was no difference in occurrence of adverse events between the honey and control arms.

PLAIN LANGUAGE SUMMARY

Honey for acute cough in children

Review question

Can honey reduce cough symptoms caused by bacteria and viruses in children?

Background

Cough causes concern for parents and is a major reason for outpatient visits. Honey is believed to prevent growth of germs and reduce inflammation.

Search date

We searched databases to 8 February 2018 and trial registers to 12 February 2018.

Study characteristics

We included six small trials involving 899 children aged 12 months to 18 years conducted in Iran, Israel, the USA, Brazil, and Kenya. This update included three new trials conducted between 2007 and 2016 that involved 331 children.

Study funding sources

Two studies were supported by pharmaceutical manufacturers; one by a university research centre; one by the Honey Board of Israel and non-government agencies; and one by USA National Honey Board. One study did not report funding sources.

Key results

We compared honey to over-the-counter cough preparations, bromelain (a pineapple enzyme) mixed with honey, fake treatment (placebo), and no treatment.

Honey probably reduces cough symptoms more than placebo and salbutamol (a drug that opens lung airways) when given for up to three days. Honey is probably more effective at providing cough relief and reducing the impact of cough on children's sleep at night than no treatment.

There may be little or no difference between the effects of honey and dextromethorphan (an ingredient in over-the-counter cough remedies) or honey and bromelain with honey on all cough symptoms. Honey may be better than diphenhydramine (an antihistamine) at relieving and reducing children's cough.

The parents of seven children given honey and two given dextromethorphan reported side effects in their children, such as not falling asleep easily, restlessness, and becoming overexcited. The parents of three children in the diphenhydramine group reported that their children were often sleepy. The parents of nine children given salbutamol, seven given honey, and six given placebo reported diarrhoea. The parents of four children who received salbutamol and one child given honey reported rash.

We found no evidence for or against the use of honey to relieve cough in children. Using honey for infants aged up to 12 months is not advised because of poor immunity against bacteria that may be present, which can cause paralysis. Most of the children received honey for just one night, which is a limitation to the results of this review.

Quality of the evidence

Overall, evidence quality was low to moderate. Some studies did not blind participants.