

Honey for acute cough in children

Sarah J Barker MD BScPharm FRCP

For the current issue of the *Journal*, we asked Dr Sarah J Barker to comment on and put into context the recent Cochrane Review on honey for acute cough in children.

Background

Cough causes concern for parents and is a major cause of outpatient visits. It can impact quality of life, cause anxiety, and affect sleep in parents and children. Several remedies, including honey, have been used to alleviate cough symptoms.

Methods

Selection criteria: Randomized controlled trials (RCTs) comparing honey given alone or in combination with antibiotics, versus nothing, placebo or other over-the-counter (OTC) cough medications to participants one to 18 years of age for acute cough in ambulatory settings.

Data analysis

Two review authors independently screened search results for eligible studies and extracted data regarding reported outcomes.

Results

Three RCTs, two with high risk for bias and one at low risk for bias, involving 568 children were included. The studies compared honey with dextromethorphan, diphenhydramine, 'no treatment' and placebo for the effect on symptomatic relief of cough using a seven-point Likert scale. The lower the score, the better the cough symptom being assessed.

Moderate-quality evidence showed that honey may be better than 'no treatment' in reducing the frequency of cough (mean difference [MD] -1.05 [95% CI -1.48 to -0.62]; $I^2=23\%$; two studies, 154 participants). High-quality evidence also suggests that honey may be better than placebo for reduction of cough frequency (MD -1.85 [95% CI -3.36 to -0.33]; one study, 300 participants). Moderate-quality evidence suggests that honey does not differ significantly from dextromethorphan in reducing cough frequency (MD -0.07 [95% CI -1.07 to 0.94]; two studies, 149 participants). Low-quality evidence suggests that honey may be slightly better than diphenhydramine in reducing cough frequency (MD -0.57 [95% CI -0.90 to -0.24]; one study, 80 participants).

Adverse events included mild reactions (nervousness, insomnia and hyperactivity) experienced by seven (9.3%) children from the honey group and two (2.7%) from the dextromethorphan group; the difference was not significant (risk ratio [RR] 2.94 [95% CI 0.74 to 11.71]; two studies, 149 participants). Three (7.5%) children in the diphenhydramine group experienced somnolence (RR 0.14 [95% CI 0.01 to 2.68]; one study, 80 participants). When honey was compared with placebo, four (1.8%) children in the honey group and one (1.3%) from the placebo group complained of gastrointestinal symptoms (RR 1.33 [95% CI 0.15 to 11.74]).

However, there was no significant difference between honey versus dextromethorphan, honey versus diphenhydramine or honey versus placebo. No adverse event was reported in the 'no treatment' group.

Conclusions

Honey may be better than 'no treatment', diphenhydramine and placebo for the symptomatic relief of cough, but it is not better than dextromethorphan. None of the included studies assessed the effect of honey on 'cough duration' because intervention and follow-up were for one night only. There is no strong evidence supporting or against the use of honey.

The full text of the Cochrane Review is available in The Cochrane Library: Oduwole O, Meremikwu MM, Oyo-Ita A, Udoh EE. Honey for acute cough in children. Cochrane Database of Systematic Reviews 2014, Issue 12. Art. No.: CD007094. DOI: 10.1002/14651858.CD007094.pub4.

EXPERT COMMENTARY

Cough is one of the most common paediatric problems for which parents seek medical attention. Most coughs are caused by acute viral infections, and healthy preschool children can experience up to six to 10 viral respiratory infections with a cough every year. Cough is very concerning and distressing for families. It often leads to worry and distress, and can affect the sleep and daily activities of both the child and his/her family. In an attempt to treat cough, parents frequently administer OTC medications; hence, the popularity and million-dollar industry of cough and cold medications. The effectiveness of these OTC cough and cold medications in children, however, has not been proven and, in fact, several studies have shown these medications to be ineffective (1). Additionally, North American data has shown that cough and cold medication use in children is associated with medication errors, toxic ingestions and adverse events leading to emergency room visits and even death (2-4). In fall 2008, Health Canada advised against the use of all cough and cold formulations in children <6 years of age, with caution being exercised when these formulations were used in children >6 years of age (5). This leaves parents seemingly without treatment options.

Honey is believed to prevent the growth of bacteria, viruses and yeast, and reduce inflammation (6). It has both soothing effects and antioxidant properties. Over the past several years, there have been several studies reporting the efficacy of honey in the treatment of cough. This recent Cochrane review examined 100 studies; however, only three met the inclusion criteria. Collectively, these three RCTs showed that honey *may* be better than no treatment, placebo or diphenhydramine (found in many combination OTC products but not usually used on its own), for symptomatic relief of cough. Honey's effect was found to be comparable with dextromethorphan

Orillia Soldiers Memorial Hospital, Orillia, Ontario

Correspondence: Dr Sarah J Barker, Orillia Soldiers Memorial Hospital, 17 Dunedin Street, Orillia, Ontario L3V 5T3.

Telephone 705-327-9188, e-mail sjbarker@osmh.on.ca

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(a common OTC cough medicine) (6). Previous studies, however, have shown that dextromethorphan itself is no better than placebo (7-9). Ultimately, the positive effects of honey are likely fairly small. In this review, honey was found to reduce cough frequency and severity over a single night by an average of 1.97 from the night before using a seven-point Likert scale (6). This may mean symptoms going from 'extremely' to 'a lot' or 'very much' to 'to some extent' or even 'a little bit' to 'not at all'. The patients who received no treatment or placebo demonstrated smaller improvements. Although the differences between these groups were statistically significant, they may or may not be clinically significant. The studies reviewed also had limitations including small size, lack of blinding in two of the three and short duration (a single night). The overall conclusion was that there is no strong evidence for or against the use of honey. This is the same conclusion as that reached in the 2010 review (10).

According to current evidence, there isn't really anything available that does much good for acute cough. We must remind families that coughing isn't all bad; it helps clear mucus from the airways. If a child is otherwise healthy there is usually no reason to suppress a cough. The best treatment for a cold remains plenty of rest, liquids and tincture of time. Cough and cold medications are potentially harmful and are not effective and, therefore, should not be given.

Nonetheless, parents appear to want to give their children 'something'. As opposed to antibiotics and cough and cold medications, honey actually is a fairly reasonable option as long as the child is older than one year of age (due to the risk of botulism in infants). This review demonstrates that honey can safely be used in children older than one year of age. It has few side effects, with only mild reactions reported that were not statistically significant, mostly gastrointestinal symptoms, insomnia and hyperactivity. Honey may have potential benefits, although based on this review, these are likely small. It is 'natural' and it tastes good. I will admit that I have recommended it to families as a potential therapy. The doses used in studies appear to be in the range of one-half to two teaspoons at bedtime; however, the optimal dose is not known.

Of note, these studies have all been performed examining only one night of treatment. Acute cough in children can last up to three weeks, with 50% resolved at 10 days and 90% at 25 days (11). The bigger question should be does honey lead to improvements that exceed that expected as part of the natural history of a cough/cold? Further study is required. In the meantime, if parents want/need to give something, why not honey?

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