

Does honey improve cough symptoms in children with upper respiratory tract infections?

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Case scenario

Madam Tan brings in her 3-year-old son, John, with 2-day history of cough and runny nose. She describes the dry cough as moderately severe and estimates approximately 10–15 episodes per hour. The cough occasionally disturbs John’s sleep. He has no significant past medical history for respiratory system medical history and has been healthy. Also, he has no fever. On examination, he looks alert and afebrile. His physical examination findings are normal except the slight runny nose.

John had the similar cough 1 year ago, which was treated with diphenhydramine. Madam Tan had noted that John was somnolent after taking the medicine. She heard from her friend that honey is effective in reducing cough symptoms. Madam Tan asks your opinion regarding treating John with honey.

Clinical inquiry

Does honey improve cough symptoms in children with upper respiratory tract infection (URTI)?

In Population, Intervention, Control and Outcome (PICO) Format:

Population	Children with URTI
Intervention	Honey
Control	Diphenhydramine; no treatment
Outcome	Reduce cough severity and frequency

Acquire

In order to answer the clinical inquiry, Cochrane reviews and PubMed databases were searched using terms “honey”, “cough” and “children”. Cochrane database of systematic reviews identified an abstract on the following review:¹

Oduwale O, Meremikwu MM, Oyo-Ita A, et al. Honey for acute cough in children.

(Cochrane Database of Systematic Reviews 2012, Issue 3. Art. No.: CD007094. DOI:10.1002/14651858.CD007094.pub3).

While searching the PubMed database, five reviews were identified, which fit the requirement. Among the five reviews, two of the Cochrane systematic reviews were by Oduwale O (2010 and 2012) and the other three were literature reviews. Since systematic reviews are considered highly informative in evidence based practices, the most updated Oduwale O’s systematic review was selected to answer the clinical inquiry.

Appraise

The stated objective of the review,¹ “To evaluate the effectiveness of honey for acute cough in children in ambulatory settings”, fits our PICO. In this review, the terms “honey” and “cough” were used to conduct search in seven databases.¹ Selection criteria, selection process, data extraction and appraisal of individual trials were adequately described. Furthermore, analysis was carried out appropriately on patient-level data as well as on trial-level data. Although this review was conducted using rigorous methodology, the included trials had high risk of bias as blinding of intervention was not done. Blinding is a study process in which the critical information on allocation of treatment is hidden either from the patients, observer or the evaluator. The method of blinding in randomised controlled trial (RCT) is used to ensure that there are no differences in the way in which each group is assessed or managed and thus minimises the bias. Since blinding of intervention was not done for the included RCTs; the quality of evidence based on this review is not ensured.

Results

This review included two RCTs. Measures of treatment effect in the RCTs were the mean differences (MDs) derived from parents’ subjective assessment of cough symptoms through validated questions using a 7-point Likert scale. The mean difference (MD)

is a standard statistic that measures the absolute difference between the mean values in two groups in a clinical trial. It estimates the amount by which the experimental intervention changes the outcome on an average compared with the control. Honey was better than 'no treatment' in reducing frequency of cough (MD -1.07; 95% CI -1.53 to -0.60; two studies; 154 participants). Low quality evidence suggests that honey maybe slightly better than diphenhydramine in reducing cough frequency (MD -0.57; 95% CI -0.90 to -0.24; one study; 80 participants). Three children (7.5%) experienced somnolence in the diphenhydramine group but it was not significantly different from the honey (RR 0.14; 95% CI 0.01 to 2.68; 80 participants).¹

Apply

One of the two trials included the patients from 24–60 months and the median age of another RCT was 5.22 years. Therefore, the findings of this review are applicable to John. Based on the results, as compared to diphenhydramine and "no treatment", honey seems to have somewhat higher effectiveness in reducing the severity and frequency of acute cough due to URTIs. Despite having small risk of causing insomnia, hyperactivity and

nervousness¹, honey can still be recommended to John because of its potential benefits in improving quality of sleep and reducing the severity of cough.

Discussion

The limitation of this review update is that only two small studies with high risk of bias were included. URTIs are self-limiting illness and they are best managed without taking any medications to avoid adverse effects. However, if the cough affects the quality of life or sleep, antihistamine or honey can be considered. Theoretically, diphenhydramine can relieve both rhinorrhoea and cough; however, the evidence has shown it can relieve rhinorrhoea, but not cough.² Since antihistamine or other over-the-counter cold medicines have not shown to be effective in improving acute cough² and in fact they could be deadly if taken in large doses,³ honey serves as a safer alternative for children with distressing acute cough. Having said that, honey could be contaminated with *Clostridium botulinum*; infant less than 1 year of age should be restricted from consuming honey.⁴ The potential adverse effects like insomnia, hyperactivity and nervousness should be disclosed to the parents if honey is prescribed.

References

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