Vapor Rub Better Than Petrolatum & No Treatment for Cold Symptoms

Source: *Paul IM, Beiler JS, King TS, et al. Vapor rub, petrolatum, and no treatment for children with nocturnal cough and cold symptoms. Pediatrics. 2010;126(6):1092-1099; doi:10.1542/peds.2010-1601.*

PICO

Question: Among children aged 2 to 11 years, is a single application of a vapor rub or petrolatum superior to no treatment for nocturnal cough, congestion, and sleep difficulty caused by upper respiratory infection?

Question type: Intervention

Study design: Prospective, randomized, partially double-blinded

Researchers from Pennsylvania State College of Medicine conducted a randomized controlled trial to determine if a single application of either a vapor rub (VR) or petrolatum is superior to no treatment for nocturnal cough, congestion, and sleep difficulty in children 2 to 11 years old with upper respiratory infection (URI). Eligible patients were randomly assigned to one of the three treatment groups. Those randomized to VR or petrolatum had the ointment applied 30 minutes prior to bedtime. In an attempt to mask the distinctive odor of VR and preserve blinding, parents in the petrolatum and VR groups applied VR to their own upper lips prior to rubbing the treatment ointment on their child and the children and other family members were directed not to tell the parents if they detected an odor. For the study, parents rated the severity of the following symptoms in their child for the night prior to enrollment and post-intervention using 7-point Likert scales: frequency and severity of cough, rhinorrhea, and nasal congestion, as well as the impact of cough and cold symptoms on both child and parent sleep. The main study outcomes were changes in ratings for each symptom. Parents also assessed adverse effects from the study medications.

Of 144 children enrolled, 138 completed the single-night study. The mean age of these children was 5.8 years; they had been coughing an average of 4.3 days and congested an average of 4.2 days before enrollment. A total of 44 children were randomized to the VR group, and 47 each were in the petrolatum and no treatment groups.

For all measured outcomes, there was a significant improvement in Likert scale scores in each of the treatment groups. Compared to those in the no treatment group, children randomized to VR had significantly more improvement in cough severity, cough frequency, nasal congestion, child's sleep, and parent's sleep. Patients in the VR treatment group also had significantly greater improvement than those randomized to petrolatum for the outcomes of child's sleep and parents' sleep. There was no significant difference in improvement for any outcome between those in the petrolatum and no treatment groups, and no differences between any treatment groups for improvement in rhinorrhea. Overall, 46% of the participants in the VR group experienced at least one mild irritant adverse effect; parents of 28% of children in the VR group reported a burning sensation of the skin, and 16% and 14% reported a burning sensation of the eyes and nose, respectively. When surveyed the morning after the study, 86% of the VR-treating parents and 89% of the petrolatum-treating parents correctly guessed their child's study group.

The authors conclude that despite mild irritant adverse effects, VR provided symptomatic relief for children with URIs and allowed them and their parents to have a more restful night.

Commentary by

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Dr Delgado has disclosed no financial relationship relevant to this commentary. This commentary does not contain a discussion of an unapproved/investigative use of a commercial product/device.

The current study has limitations as noted by the authors. All three groups had improved symptom scores during this one-night study, and it is unclear how much of the benefit obtained was due to the natural history of URI, placebo effect, or the interventions themselves. The blinding strategy was creative, but the clear majority of patients were able to accurately guess their study arm, reducing the benefits of the blinding process. Also of note, the study was financially supported by a grant from the manufacturer of Vicks VapoRub. Concerns about camphor toxicity (eg, seizures) led the United States Food and Drug Administration (FDA) to limit the camphor content of common cold preparations to 11%.[1] Vicks VapoRub (the VR product used for the study) contains 4.8% camphor. While some dermal absorption of camphor occurs, most toxicity occurs via ingestion, and a child younger than age 6 years would need to ingest an estimated 20 ml of VR to achieve toxic effects.[1] If parents are accepting of the minor irritant effects of the VR, then application of VR to their children's chests may provide symptomatic relief and afford both parents and children more restful sleep.

Parents and pediatricians eagerly await evidence for effective and safe treatments for the common cold in children. The concern over potential harmful side effects coupled with limited evidence for efficacy resulted in the voluntary recall of oral over-the-counter (OTC) cough and cold medications for young children in October 2007,[2] followed by the January 2008 FDA recommendation to avoid use of these products in children younger than 2 years.[3] *AAP Grand Rounds* has previously reviewed other alternatives to OTC cough and cold remedies, such as zinc lozenges (see *AAP Grand Rounds*, June 2008;19:64[4]), honey (see *AAP Grand Rounds*, March 2008;19:28[5]), and echinacea (see *AAP Grand Rounds*, February 2004;11:17[6]).

References

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