Peppermint Oil (Menthol)

Primary:

Ben-Arye E, Dudai N, Eini A, Torem M, Schiff E, Rakover Y. Treatment of Upper Respiratory Tract Infections in Primary Care: A Randomized Study Using Aromatic Herbs. *Evid Based Complement Alternat Med* 2011;2011:690346.

Extended Abstract:

Study Objectives:

The objective of this study is to investigate the clinical effects of aromatic essential oils of five plants (*Eucalyptus citriodora, Eucalyptus globulus, Mentha piperita, Origanum syriacum,* and *Rosmarinus officinalis*), grown in Israel, in patients with upper respiratory tract infection.

Methods:

- Design: Double-blind randomized controlled trial.
- Allocation: Following the baseline evaluation, participants were randomized to either a study group or control group. The sprays were packaged in identical bottles in a box arranged randomly.
- Blinding: Study investigators and participants were blinded to study groups and data until the trial was completed.
- Follow-up period: 3 days.
- Setting: Six family medicine clinics in Northern Israel.
- Participants: 60 adult volunteers, aged from 21 to 66 years, were recruited to participate in this study. Participants were included if they were older than 18 years, had URTI symptoms and a clinical diagnosis of pharyngotonsillitis, viral laryngitis, or viral tracheitis, and gave informed consent. Patients were excluded for a diagnosis of acute follicular tonsillitis, peritonsillar abscess, asthma, current use of antibiotic treatment, coumadin, immunosuppressive drugs, known hypersensitivity to aromatic essential oils, and pregnancy.
- Intervention: Participants were asked to use the spray with the indicator pointed to their throat by applying 4 sprays each time every 5 minutes, outside the physician's room. After 20 minutes, the participants were evaluated for sore throat and general appraisal of the spray taste, smell, and other sensations. Following this evaluation, participants were advised to apply the spray at home for consecutive 3 days in a dosage of 4 sprayings each time, 5 times a day.
- Outcomes: The main outcome measure was patient assessment of the change in severity of sore throat.
- Patient follow-up: After baseline assessment, 60 patients were randomly assigned to the study group and the controlled group. 2nd assessment was carried out following 20 minutes of treatment. 3rd assessment was carried out following 3 days of treatment.

Main results:

60 patients participated in the study (26 in the study group and 34 in the control group). Intention-to-treat analysis showed that 20 minutes following the spray use, participants in the study group reported a greater improvement in symptom severity compared to participants in the placebo group (P=0.019). There was no difference in symptom severity between the two groups after 3 days of treatment (P=0.042).

Conclusions:
Spray application of five aromatic plants reported in this study brings about significant and immediate improvement of sore throat. However, no significant improvement was noticed after 3 days of treatment.

Comments/critical appraisal (including assessment of internal and external validity):
Internal Validity Assessment:
The intervention started with the same prognosis and was randomized. The both study groups were similar with respect to known prognostic factors and was balanced through out the study. Also, the study was double blinded. The study started with 26 patients in the study group and 34 patients in the control group. The groups were prognostically balanced at the end of the study. The follow up was complete. At the second assessment (20 minutes following treatment on day 1), 1 patient in the study group and 2 patients in the control group failed to show up for any post-baseline visits. At the 3rd assessment (3 days following treatment), 25 patients completed protocol in the study group and 32 patients completed protocol in the control group. All 26 patients in the study group and 34 patients in the control group were included in intention-to-treat analysis.

External Validity Assessment:
The treatment in this study includes spray application of five aromatic plants. This study does not show the effect of peppermint oil compared to placebo. Therefore, conclusion cannot be made to recommend peppermint oil as an effective treatment for sore throat.

Secondary and Tertiary Literature:
Database: Natural Standard Web Site.
http://www.naturalstandard.com.proxy.lib.uwaterloo.ca/databases/. Accessed February March 3, 2013.

Source Description:
Natural Standard is a database containing systematic review of scientific evidence on complementary and alternative medicine. Its editorial board contains MDs, NDs, PharmDs, PhDs, DC, Administrator of Ayurveda Institute, Director of the research group for Mind-Body dynamics at the Institute for Nonlinear Science and Ayurveda Physician, and Executive Director of Ayurvedic Institute of India. The database is generally updated every 3-18 months. However, it does not mention when each individual monograph was updated. Based on the evidence, the Natural Standard provides evidence grade and they are as follows:
A – Strong positive scientific evidence
B – Positive scientific evidence
C – Unclear scientific evidence
D – Negative scientific evidence
F – Strong negative scientific evidence

Summary:
Natural standard mentions that menthol found in peppermint oil is used in “rubs” that is applied to the skin and inhaled. However, high quality research is lacking in this area. Also, it mentions that lozenges containing 2-10mg of peppermint oil can be used in patients 18 years or over for

sore throat. The natural standard gives grade level C for the use of menthol (peppermint) in sore throat.

Comments/critical Appraisal:
Due to excellent safety profile, patients over the age of 18 years can take peppermint for sore throat if no contraindications present.