Cochrane Library

Cochrane Database of Systematic Reviews

Aromatherapy for treatment of postoperative nausea and vomiting (Review)

Hines S, Steels E, Chang A, Gibbons K

Hines S, Steels E, Chang A, Gibbons K.
Aromatherapy for treatment of postoperative nausea and vomiting.
Cochrane Database of Systematic Reviews 2018, Issue 3. Art. No.: CD007598.
DOI: 10.1002/14651858.CD007598.pub3.

www.cochranelibrary.com

WILEY

[Intervention Review]

Aromatherapy for treatment of postoperative nausea and vomiting

Sonia Hines[1], Elizabeth Steels[2], Anne Chang[3], Kristen Gibbons[4]

[1]Evidence in Practice Unit, Mater Misericordiae Limited. Queensland Centre for Evidence-Based Nursing & Midwifery: a Joanna Briggs Centre of Excellence, South Brisbane, Australia. [2]School of Medical Sciences, The University of Sydney, Medical School, Sydney, Australia. [3]School of Nursing, Queensland University of Technology, Brisbane, Australia. [4]Mater Research Institute - The University of Queensland (MRI-UQ), South Brisbane, Australia

Contact: Sonia Hines, Evidence in Practice Unit, Mater Misericordiae Limited. Queensland Centre for Evidence-Based Nursing & Midwifery: a Joanna Briggs Centre of Excellence, South Brisbane, Australia. sonia.hines@mater.org.au, soniahines@optusnet.com.au.

Editorial group: Cochrane Anaesthesia Group.
Publication status and date: New search for studies and content updated (conclusions changed), published in Issue 3, 2018.

Citation: Hines S, Steels E, Chang A, Gibbons K. Aromatherapy for treatment of postoperative nausea and vomiting. *Cochrane Database of Systematic Reviews* 2018, Issue 3. Art. No.: CD007598. DOI: 10.1002/14651858.CD007598.pub3.

ABSTRACT

Background

Postoperative nausea and vomiting (PONV) is a common, unpleasant phenomenon and current therapies are not always effective for all patients. Aromatherapy has been suggested as an addition to the available treatment strategies. This review was originally published in 2012 and updated in 2017.

Objectives

The main objective was to establish the efficacy and safety of aromatherapy comparable to standard pharmacological treatments for PONV in adults and children.

Search methods

We searched CENTRAL; MEDLINE; Embase; CINAHL; CAM on PubMed; Informit; LILACS; and ISI Web of Science as well as grey literature sources and the reference lists of retrieved articles up to March 2017. The original search was performed in August 2011.

Selection criteria

We included all randomized controlled trials (RCTs) and controlled clinical trials (CCTs) where aromatherapy was used to treat PONV. Interventions were all types of aromatherapy compared to placebo or with standard antiemetics. Primary outcomes were severity and duration of PONV. Secondary outcomes were adverse reactions, use of rescue antiemetics and patient satisfaction.

Data collection and analysis

Two review authors independently assessed risk of bias in the included studies and extracted data. For dichotomous outcome variables, we used a random-effects model and calculated risk ratio (RR) with associated 95% confidence interval (95% CI). For continuous outcome variables, we used a random-effects model and calculated standardized mean difference (SMD) with associated 95% CI. We used the GRADE software to compile 'Summary of findings' tables.

Main results

We included seven new studies with 663 participants in the 2017 update; five RCTs and two CCTs. These were added to the nine previously included studies (six RCTs and three CCTs with a total of 373 participants) for a total of 16 included studies and 1036 participants in this updated review. The mean age and range data for all participants were not reported for all studies. We identified two registered trials that met the inclusion criteria for this review; however there are no results for these studies yet.

Overall, the GRADE assessment of evidence quality ranged from moderate to very low. The method of randomization in 11 of the 12 included RCTs was explicitly stated and adequate. Incomplete or methodologically diverse reporting of data affected the completeness of the analysis. Data on additional aromatherapies were added in the 2017 update (blended aromatherapy products, and peppermint products). Heterogeneity of outcome measures and time points between studies affected the completeness of the analysis.

In the summary of the findings of six studies, we did not find aromatherapy to be effective in reducing nausea severity in comparison to placebo (SMD -0.22, 95% CI -0.63 to 0.18, P value = 0.28, 241 participants, level of evidence: low). Those participants receiving aromatherapy were no more likely to be free of nausea at the end of the treatment period than those receiving placebo (RR 3.25, 95% CI 0.31 to 34.33, P value = 0.33, 4 trials, 193 participants, evidence level: very low), however they were less likely to require rescue antiemetics (RR 0.60, 95% CI 0.37 to 0.97, P value = 0.04, 7 trials, 609 participants, evidence level: low). There were no data reported on adverse events or patient satisfaction for this comparison.

A specific comparison of peppermint aromatherapy to placebo did not show evidence of an effect on nausea severity at five minutes post-treatment in the pooled results (SMD -0.18, 95% CI -0.86 to 0.49, P value = 0.59, 4 trials, 115 participants, evidence level: low). There were no data reported on nausea duration, use of rescue antiemetics, adverse events or patient satisfaction for this comparison.

When we pooled studies comparing isopropyl alcohol to standard antiemetic treatment in a GRADE summary of findings, in terms of nausea duration, there was a significant effect on the time in minutes to a 50% reduction in nausea scores (SMD -1.10, 95% CI -1.43 to -0.78, P value < 0.00001, 3 trials, 176 participants, evidence level: moderate). Fewer participants who received isopropyl alcohol required rescue antiemetics (RR 0.67, 95% CI 0.46 to 0.98, P value = 0.04, 215 participants, 4 trials, evidence level: moderate). Two studies with 172 participants measured patient satisfaction; there were high levels of satisfaction across both aromatherapy and standard treatment groups and no differences found (evidence level: low). There were no data reported on nausea severity or adverse events for this comparison.

There was no difference in effectiveness between isopropyl alcohol vapour inhalation and placebo for reducing the proportion of participants requiring rescue antiemetics (RR 0.39, 95% CI 0.12 to 1.24, P value = 0.11, 291 participants, 4 trials, evidence level: very low). There were no data reported on nausea severity, nausea duration, adverse events or patient satisfaction for this comparison.

Authors' conclusions

Overall, for nausea severity at the end of treatment, aromatherapy may have similar effectiveness to placebo and similar numbers of participants were nausea-free. However, this finding is based on low-quality evidence and therefore very uncertain. Low-quality evidence also suggests that participants who received aromatherapy may need fewer antiemetic medications, but again, this is uncertain. Participants receiving either aromatherapy or antiemetic medications may report similar levels of satisfaction with their treatment, according to low-quality evidence.

PLAIN LANGUAGE SUMMARY

Aromatherapy for treating postoperative nausea and vomiting

Review question

This review sought to evaluate the effect of aromatherapy on the severity and duration of nausea and vomiting experienced by some people immediately after having surgery.

Background

Postoperative nausea and vomiting (PONV) is a common side effect following surgery, with up to a third of all patients suffering moderate to severe nausea and vomiting following general anaesthesia using inhaled anaesthetics. Nausea is an abdominal discomfort or queasiness that may be accompanied by vomiting. Current pharmaceutical treatments do not always work effectively for people or they may have unpleasant adverse effects. Aromatherapy involves inhalation of the vapour of essential oils or other substances to treat or alleviate physical and emotional symptoms. Aromatherapy is sometimes recommended for treating nausea and vomiting, although currently there is not sufficient evidence to show it is effective. This review is an update of a review previously published in 2012.

Study characteristics

We examined a total of 16 controlled clinical studies using aromatherapy for PONV with a total of 1036 participants (seven new studies from the March 2017 searches were added to nine studies from the original review). The participants were adults except for two studies in children. The studies applied aromatherapy at the first complaint of nausea in the immediate period after surgery and measured nausea for up to two days. Aromatherapy substances used were isopropyl alcohol (rubbing alcohol), peppermint oil, ginger, or mixtures that included ginger, spearmint, peppermint and cardamom; or lavender, peppermint, ginger, and spearmint oils.

The studies compared aromatherapy to saline or water placebo, controlled breathing, other aromatherapy substances, anti-nausea medications, or a combination of these, with some studies having up to four groups.

Key results

Overall, aromatherapy was not effective in reducing nausea severity at greater than three minutes after treatment in comparison to saline, water or controlled breathing placebo (6 studies with 241 participants) but more participants who received aromatherapy were nausea-free at the end of treatment (4 studies, 193 participants) and fewer participants who received aromatherapy required anti-nausea medications (7 studies with 609 participants).

Peppermint oil did not show an effect on nausea severity at five minutes after treatment (4 studies, 115 participants).

We could not pool data for a comparison of isopropyl alcohol to standard anti-nausea medications for nausea severity. In terms of nausea duration, the time to 50% relief of symptoms was faster with isopropyl alcohol vapour than with standard antiemetics (ondansetron and promethazine) (3 studies, 176 participants). Aromatherapy using isopropyl alcohol vapour inhalation provided rapid, short-term relief of nausea and reduced the need for rescue anti-nausea drugs (4 studies, 215 participants). Patient satisfaction with aromatherapy appeared high in the four studies that measured this outcome.

Fewer participants who received isopropyl alcohol aromatherapy required rescue anti-nausea drugs compared with those who received saline (4 studies, 291 participants). The participants receiving aromatherapy were not more likely to be free of nausea at the end of the treatment period however they were less likely to require rescue anti-nausea drugs.

All participants in these studies (treatment and comparison groups) reported high levels of satisfaction, possibly indicating that increased attention to the care of postoperative nausea and vomiting improved satisfaction with their care. Aromatherapy may provide a useful therapeutic option, particularly when the alternative is no treatment at all.

None of the included studies reported adverse effects from the aromatherapies used.

Quality of the evidence

Overall the evidence quality ranged from moderate to very low, as assessed by GRADE. There was a high risk of bias due to the design of some studies. The included studies consisted of 12 randomized controlled trials and 4 controlled clinical trials where participants were not randomly assigned to a treatment group. In most studies, participants and researchers were aware of group allocation and this may have had an influence on the results. The strong odours involved meant that aromatherapy was a difficult intervention to conceal from participants, research staff and those assessing outcomes. The different comparisons, time points and measurement scales limited the data that could be pooled. Some data were expressed as standardized scales and measures, which enabled pooling of results in meta-analyses. The data were incomplete for effects longer than 60 minutes.