



The Effect of Aromatherapy Administration in the Decrease of Nausea in Post-Spinal Anesthesia Patients

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Abstract

AIM: This study aims to know the effect of aromatherapy on reducing nausea in post-spinal anesthesia patients.

METHODS: This research is a literature study. In the strategy to find the journal framework used is Population, Intervention, Comparison, Outcome, and Times (PICOT). The keywords used are "Aromatherapy and nausea and vomiting and postoperative and spinal anesthesia." The data sources used are e-resources from PubMed and Google Scholar in the form of articles or journals. The inclusion criteria in this study were national and international journals from different databases and related to research variables, namely nausea, with aromatherapy inhalation intervention, as well as articles discussing the effects of inhaled aromatherapy on nausea in postoperative patients with spinal anesthesia. Deadline for publication of articles within the past 5 years (2016–2021). The exclusion criteria for this study were national and international databases and had nothing to do with the study variables, no intervention was given, there was no reflexology effect on anxiety levels in burn patients and the publication time of the article was more than 5 years.

RESULTS: In searching for articles using 2 databases, each was found from PubMed 1871 search results and Google Scholar 951 search results. After disqualification related to the year of publication, 485 articles were obtained in the last 5 years, and in the end 8 articles were obtained that matched the criteria obtained. Of the 8 articles that have been reviewed, it was found that postoperative patients with spinal anesthesia experienced nausea

CONCLUSION: Based on a systematic review conducted on 8 articles, it can be concluded that the administration of aromatherapy is very useful for reducing nausea in postoperative patients with spinal anesthesia. There are many choices of aromatherapy that can be given to patients, ranging from lavender aromatherapy, ginger aromatherapy, peppermint aromatherapy, lemon essential oil aromatherapy and rose aromatherapy. Hence, it is suggested that aromatherapy inhalation intervention can be applied to patients who experience postoperative nausea with spinal anesthesia.

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Introduction

Surgery is one of the follow-up actions of emergency handling according to the patient's condition. In addition, surgery is also performed as an invasive treatment by opening the body part through an incision ending with closure or suturing of the wound [1].

Surgery is a stressful, complex event [2]. Based on data obtained from the World Health Organization (WHO), the number of patients undergoing surgery has increased significantly from year to year. It was recorded that in 2011 there were 140 million patients in all hospitals in the world, while in 2012; the data experienced an increase of 148 million people [3].

Spinal anesthesia is widely used for surgical procedures [4]. Spinal anesthesia is a regional anesthetic technique that is most often used in cesarean section procedures; besides being a simple technique, it also has a strong block quality even with

a small volume and dose, minimal side effects when compared to general anesthesia. Effects that usually appear after spinal anesthesia include hypotension. The incidence of hypotension after spinal anesthesia reaches 30%–80% in cesarean delivery [5].

Postoperative care is an advanced stage of pre- and intra-operative care, in this phase nursing activities include assessing the effects of anesthesia, monitoring vital signs, airway effectiveness, and preventing complications that may arise from surgery, and focusing on improving patient healing until the next evaluation [6]. Nausea and vomiting are the most common phenomena that occur after surgery [7]. These problems mainly involve postoperative nausea and vomiting (PONV), Soon and Yoon found that 27.1% of patients experienced PONV [8]. PONV is the most common postoperative complication, with an incidence rate as high as 50% after surgery [9].

Intraoperative nausea and vomiting is a complex multifactorial problem resulting from both

anesthetic and non-anesthetic factors [4]. Several factors that influence the incidence of PONV include gender, age, obesity, active preoperative anxiety conditions, type of surgery, and the type of anesthetic used during surgery [10].

Efforts to reduce the incidence of PONV can be done by using several strategies to prevent and treat nausea and vomiting both with pharmacological and non-pharmacological therapies (aromatherapy, acupuncture, acupressure, relaxation therapy, hypnotic therapy, and music therapy) [11].

The term “aromatherapy” was first used in the early 20th century. Aromatherapy is the use of aromatic plant oils for various therapeutic purposes. The scent attached to the olfactory receptors in the nasal cavity can stimulate an electrical signal which is then transmitted to the brain by sensory neurons. These electrical signals stimulate the limbic system (the part of the brain associated with emotions and memories), and thus aromatherapy can reduce anxiety and reduce the perception of pain [12].

Methods

In the strategy to find the journal framework used is Population, Intervention, Comparison, Outcome, and Times (PICOT). The keywords used are “Aromatherapy and nausea and vomiting and postoperative and spinal anesthesia.” The data sources used are e-resources from PubMed and Google Scholar in the form of articles or journals. The inclusion criteria in this study were national and international journals from different databases and related to research variables, namely nausea, with aromatherapy inhalation intervention, as well as articles discussing the effects of inhaled aromatherapy on nausea in postoperative patients with spinal anesthesia. For publication articles with the 5 years (2016–2021). The exclusion criteria for this study were national and international databases and had nothing to do with the study variables, no intervention was given, there was no reflexology effect on anxiety levels in burn patients, and the publication time of the article was more than 5 years.

Results

In searching for articles using 2 databases, each was found from PubMed 1871 search results and Google Scholar 951 search results. After disqualification related to the year of publication, 485 articles were obtained in the last 5 years, and in the end 8 articles

were obtained that matched the criteria obtained. Of the 8 articles that have been reviewed, it was found that postoperative patients with spinal anesthesia experienced nausea.

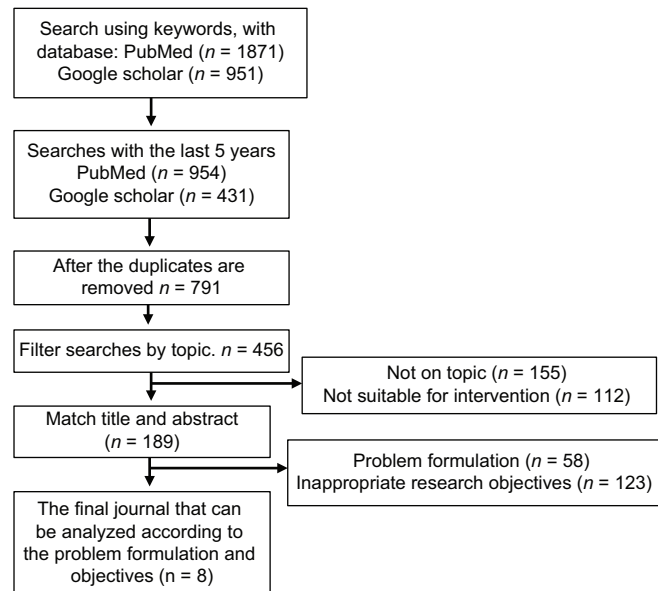


Figure 1: Article Search Process

From the 8 articles obtained, in Table 1 it can be seen that the research conducted by Arisdiani and Asyofi [13] which uses a randomized clinical trial design, consecutive sampling technique, has 2 variables, namely ginger aromatherapy and nausea and vomiting, the instrument used is Rhodes index nausea, vomiting, and retching (Rhodes INVR) using central tendency analysis, Mann–Whitney U-test, statistical test of Kolmogorov–Smirnov, and Shapiro–Wilk Test. In addition, the same research was also carried out by Dirgahayu *et al.* [14] using a pre-experimental design with one group pretest–posttest, consecutive sampling technique, has two variables, namely ginger aromatherapy and nausea and vomiting, the instrument used are the Rhodes INVR, while the results of the study were analyzed by Shapiro–Wilk and Wilcoxon match pair test.

Further research peppermint essential oil inhalation has beneficial effects on reducing nausea and vomiting after open-heart surgery. Using peppermint essential oil inhalation for managing PONV is recommended [15]. Next from research [16] which used a quasi-experimental research design, the sampling technique uses consecutive sampling, has two variables, namely Aromatherapy lemon essential oil and Nausea Vomiting, the instrument used is the Gordon Observation Sheet, with Wilcoxon signed analysis technique and Man–Whitney test. Further research from Karsten [17], the peppermint aromatherapy was favorably received by many of the postoperative patients and may be an effective adjunct treatment with antiemetics for PONV. The same research was also conducted by Khasanah *et al.*, [18] using a

Table 1: Systematic review of the effect of aromatherapy on reduction in nausea in post-spinal anesthesia patients

Number	Author	Year	Title	Method (design, sample, variable, instrument, analysis)	Research results	Database
1	Triana Arisdiani, Ahmad Asyrofi	2019	Effect of non-pharmacological nursing interventions ginger aromatherapy on nausea and vomiting in post-operational patients	D: Randomized clinical trial S: Consecutive sampling V: Ginger aromatherapy and nausea vomiting I: Rhodes INVR A: Central tendency, Mann–Whitney U test, Kolmogorov–Smirnov and Shapiro–Wilk statistical test	The results of the study obtained $p = 0.010$ which indicated there was a significant difference in the score of nausea and vomiting between the control and intervention groups. This study showed that ginger aromatherapy had an effect on reducing nausea and vomiting PONV scores in postoperative patients	Google Scholar
2	Nur Intan Hayati H. K, Yati Nurhayati, Ingrid Dirgahayu	2018	Giving ginger aromatherapy for 5–10 min reduces complaints of nausea vomiting in post cesarean section patients	D: Pre-experiment with one group pretest – posttest S: Consecutive sampling V: Ginger aromatherapy and nausea and vomiting I: Rhodes INVR A: Shapiro–Wilk and Wilcoxon match pair test	From the results obtained, the P value is 0.000 ($\alpha < 0.05$), which means that giving ginger aromatherapy in 5–10 min can reduce complaints of nausea and vomiting. Ginger contains essential oils that have the effect of blocking the gag reflex, and gingerols that can smooth the blood and suppress nausea and vomiting. So ginger aromatherapy can be used as an alternative to accompanying therapy to reduce nausea and vomiting	Google Scholar
3	Fitri Kurnia Hayati	2018	Effect of peppermint aromatherapy on nausea in postoperative caesarean patients with spinal anesthesia	D: Pre-experiment with one group pretest posttest design approach S: Accidental sampling V: Peppermint and nausea aromatherapy: VAS A: Wilcoxon signed rank test	The results of this study showed a p value of 0.014 so it can be concluded that there is an effect on giving peppermint aromatherapy to nausea in postoperative section caesarea patients with spinal anesthesia. Peppermint aromatherapy in this study showed an effect on nausea	Google Scholar
4	Oktavia Ratih Fatimah, Wahyu Ratna, Ida Mardalena	2017	The effect of giving lemon essential oil aromatherapy on nausea and vomiting post surgery section caesarea with spinal anesthesia at RSKIA Sadewa Yogyakarta	D: Quasi-experiment S: Consecutive sampling V: Lemon essential oil aromatherapy and nausea and vomiting I: Gordon's observation sheet A: Wilcoxon signed and Mann–Whitney test	The results of the analysis showed differences in prepost nausea and vomiting between the intervention group and the control group with a p value of 0.043. There is an effect of giving lemon essential oil aromatherapy to reduce nausea and vomiting in postoperative section caesarea patients	Google Scholar
5	Meilany Rustanti, Harmilah, Ana Rahmawati	2018	The effect of peppermint aromatherapy on nausea and vomiting after spinal anesthesia surgery at the Yogyakarta City Hospital	D: Quasi experiment S: Consecutive sampling V: Aromaterapi peppermint dan mual muntah I: Rhodes INVR A: Wilcoxon dan Chi-square	The results of data analysis in the intervention group showed p value $0.02 < 0.05$ with the Wilcoxon test. Meanwhile, for the comparison group, the results obtained p value $1.00 > 0.05$. Data analysis between intervention and companion groups with Chi-square test obtained p value $0.01 < 0.05$. The results above indicate that there is an effect of giving peppermint aromatherapy to changes in nausea and vomiting after spinal anesthesia surgery	Google Scholar
6	Riski Nur Khasanah, Hendri Tamara Yuda, Fajar Agung Nugroho	2021	The effect of peppermint inhalation as non-pharmacological therapy on reduction of post-sepinal anesthesia ponv at RSPKU Muhammadiyah Gombong	D: Quasi experiment S: Purposive sampling V: PONV and independent variable (peppermint inhalation) I: NRS questionnaire A: Shapiro–Wilk and Wilcoxon	Based on the research conducted, the results obtained P value 0.000 ($p < 0.05$), which means that there is an effect of peppermint aromatherapy on the level of PONV in postoperative patients with spinal anesthesia. Conclusion, based on the results of this study, it was found that there was an effect of peppermint inhalation on the PONV scale	Google Scholar
7	Brown, Danda, and Fahey	2018	A quality improvement project to determine the effect of aromatherapy on postoperative nausea and vomiting in a short-stay surgical population	D: Quasi-experimental S: Convenience sample of postoperative short-stay V: Aromatherapy, nausea and vomiting I: Kuesioner A: "Transform – recode into different variables" option in SPSS	There was a significant decrease in nausea with the use of aromatherapy where at 30 min post-treatment found a value ($Z = -5.23, p < 0.001$) or as much as 70% reported a decrease in nausea. And at the beginning of the measurement before the intervention was found a lower value of 30%	PubMed
8	Serkan Karaman, Tugba Karaman, Hakan Tapar, Serkan Dogru, Mustafa Suren	2019	A randomized placebo-controlled study of aromatherapy for the treatment of postoperative nausea and vomiting	D: A randomized 4-armed placebo controlled study S: Randomization V: Aromatherapy, nausea and vomiting I: PONV scores A: IBM SPSS statistics for windows (version 20.0; IBM Corp., Armonk, NY, USA)	Aromatherapy can be used as an alternative or complementary method for the treatment of PONV. In particular, ginger and lavender essential oils are superior to rose oil and purified water for aromatherapy treatments. However, further studies with larger sample sizes are needed to confirm these results	PubMed

INVR: Index nausea, vomiting and retching, Rhodes INVR: Rhodes INVR, VAS: Visual Analog Scale, PONV: Postoperative nausea vomiting, NRS: Numeric Rating Scale, SPSS: NO.

quasi-experimental design with a purposive sampling technique using two variables, namely postoperative nausea vomiting (PONV) and an independent variable (peppermint inhalation), the instrument used was the NRS (Numeric Rating Scale) questionnaire, using Shapiro–Wilk and Wilcoxon analysis. Further research conducted by Brown *et al.*, [19] with a quasi-experimental research design, sampling technique Convenience sample of postoperative short-stay, using aromatherapy, nausea and vomiting variables, the instrument used is a questionnaire with the analysis technique "Transform - Recode Into Different Variables" option in SPSS. On the research conducted by Amir *et al.*, [20] using a randomized 4-armed placebo-controlled study design, sampling randomization technique, using two variables aromatherapy, nausea

and vomiting, using PONV scores instrument, analysis technique IBM SPSS Statistics for Windows (version 20.0; IBM Corp., Armonk, NY, USA).

Discussion

Of the 8 articles reviewed (Figure 1), according to research conducted by Arisdiani and Asyrofi [13]. It was found that inhalation with ginger was safe and well-tolerated. Ginger inhalation can reduce the severity of PONV and can reduce the incidence of PONV. Ginger can be a useful alternative antiemetic drug to relieve PONV. In addition to the same research was also

conducted by Dirgahayu *et al* [14]. The results showed that the Scala complaints of nausea and vomiting in 27 respondents of post-cesarean section patients decreased with a significant $p = 0.000$ ($\alpha < 0.05$), this indicates that giving ginger aromatherapy in 5–10 min can reduce complaints of nausea and vomiting in post-cesarean section patients. The administration of ginger aromatherapy varies between 5–10 min according to the level of nausea and vomiting experienced by post-cesarean section patients. Ginger aromatherapy can be used as an alternative in handling complaints of nausea and vomiting. The results of the same study were also carried out by Maghami [15] who got the results that the number of respondents before and after being given peppermint aromatherapy on the mild nausea scale increased from 1 patient (14.3%) to 4 patients (57.1%) and on the severe nausea scale decreased from 4 patients (57, 1%) to 1 patient (14.3%). From the non-parametric Wilcoxon Signed-Rank Test statistical test, it was found that the significance value was 0.014. Therefore, the hypothesis is accepted which means that there is an effect of giving peppermint aromatherapy to nausea in postoperative section cesarean patients with spinal anesthesia.

The same research was put forward by Fatimah [16] said that the results of the analysis showed differences in pre-post nausea and vomiting between the intervention group and the control group with a $p = 0.043$. Hence, it can be concluded that there is an effect of giving lemon essential oil aromatherapy to reduce nausea and vomiting in postoperative section cesarean patients under spinal anesthesia. In addition, Karsten *et al.*, [17] also suggested that there was an effect of peppermint aromatherapy on changes in nausea and vomiting after spinal anesthesia surgery. In research conducted by Khasanah *et al.*, [18] showed the same results, namely the average PONV level before being given peppermint aromatherapy at the PONV 6 score of 52.1% while after being given peppermint aromatherapy the average PONV 2 score was 33.3%. Based on the Wilcoxon test with a value of 0.000, it can be concluded that there is an effect on the level of postoperative PONV with spinal anesthesia with peppermint aromatherapy intervention.

Based on the results conducted by Brown *et al.* [19] who also suggested that the administration of mixed aromatherapy was effective in reducing PONV in postoperative patients, indicating that this is the right choice. Nurses can teach these interventions to other health-care providers and patients as part of a nursing care plan for caring for the patient postoperatively. For this reason, nurses need to conduct peer-to-peer discussions in providing this intervention [20].

The benefits of adding aromatherapy to standard treatment for PONV include: providing a comprehensive multimodal approach for better management of PONV and increasing patient satisfaction. Karaman *et al.* [21] also stated the same thing that Based on the results of

this study, aromatherapy can be used as an alternative or complementary method to manage PONV. In particular, ginger and lavender essential oils are superior to rose oil and purified water for aromatherapy treatments. However, further studies with larger sample sizes are needed to confirm these results.

Based on the above-mentioned, it can be seen that in giving inhaled aromatherapy to postoperative spinal anesthesia patients with nausea problems, there are various kinds of aromatherapy that can be given, starting from lavender aromatherapy, ginger aromatherapy, peppermint aromatherapy, lemon essential oil aromatherapy and rose aromatherapy. All of these aromatherapies are effective for patients who experience postoperative nausea with spinal anesthesia.

Conclusion

Based on a systematic review conducted on 8 articles, it can be concluded that the administration of aromatherapy is very useful for reducing nausea in postoperative patients with spinal anesthesia. There are many choices of aromatherapy that can be given to patients, ranging from lavender aromatherapy, ginger aromatherapy, peppermint aromatherapy, lemon essential oil aromatherapy, and rose aromatherapy. Hence, it is suggested that aromatherapy inhalation intervention can be applied to patients who experience postoperative nausea with spinal anesthesia.

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