



## LEMON AROMATHERAPY AS AN ALTERNATIVE TO REDUCE THE INTENSITY OF CHEMOTHERAPY-RELATED NAUSEA AND VOMITING EXPERIENCED BY THE BREAST CANCER PATIENTS

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ABSTRACT	Keywords
<p>The mechanism of breast cancer is the cells growing and breeding become appear abnormal tissue of breast. One of the common treatments for it is chemotherapy using cytotoxic drugs. However, chemotherapy may cause nausea and vomiting as its side effects. Lemon aromatherapy is a complementary therapy in patients with breast cancer who experience nausea or vomiting. The study's purpose was to know the effect of lemon aromatherapy on the intensity of nausea and vomiting experienced by the breast cancer patients as an effect of chemotherapy in the Chemo Center Room of RSAL Dr. Ramelan Surabaya.</p> <p>The study was the pre-experimental design with pre-post test without control group. There are two variables, lemon aromatherapy is independent, and the intensity of nausea and vomiting is dependent. The sampling technique was nonprobability purposive sampling, with 34 breast cancer patients taken as the sample. A questionnaire was the instrument for collecting the data. The Data collected were analyzed using the Wilcoxon Test (<math>\alpha = 0,05</math>).</p> <p>The study's result indicated that the lemon aromatherapy was effectively to decrease of the intensity of nausea and vomiting experienced by the respondents, with the value of Wilcoxon test <math>p &lt; 0.001</math>.</p> <p>Lemon aromatherapy stimulates the raphe nucleus to produce serotonin. Which function to generate a sense of comfort and calm. For that reason, it can be used as an alternative for taking care of nausea and vomiting experienced by patients with breast cancer as the side effect of chemotherapy.</p>	<p><b>Lemon Aromatherapy, Nausea, Vomiting, Chemotherapy</b></p>

### INTRODUCTION

Breast cancer mechanism is the cells growing and breeding become appear abnormal tissue of breast (Ismonah, 2013). The medical records from the RSAL Dr. Ramelan Surabaya showed that the number of breast cancer patients undergoing

chemotherapy was 599 patients in 2015, 406 patients in 2016, and 522 patients in 2017. Studies in the USA showed that 22% - 50% of the patients undergoing chemotherapy experienced nausea and vomiting (Mulyani & Nuryani, 2013). The number of patients who underwent chemotherapy and still experienced nausea

and vomiting despite being given antiemetics was 12 out of 30 patients in July 2018. Aromatherapy is a treatment applied in addition to main major treatments interventions (Subagyo, 2013). Orange oil is one of the aromatherapies that are refreshing and useful for treating nausea, flatulence, and headaches, as well as arousing appetite (Nursalam, 2017).

## METHOD

This study's design was pre-experimental design with a pre-post test without control group (self control) (Jaelani, 2009). This study was conducted in the Chemo Center Room of RSAL Dr. Ramelan Surabaya from which the population was taken. The population was the breast cancer patients who experienced nausea and vomiting due to chemotherapy, around 40 people per month on average. The sample consists of parts of the population that could be used as research subjects taken through a sampling technique. Sampling is the process of selecting the portions of the population that represent the existing population (Peoples et al., 2016). The number of breast cancer patients who experienced nausea and vomiting due to chemotherapy and met the sample requirements was 34 people taken through the technique sampling of purposive.

The variables were the lemon aromatherapy as independent while the intensity of nausea and vomiting as dependent. The intensity of nausea and vomiting was indicated by using the INVR (Index of Nausea, Vomiting, and Retching) questionnaire. The INVR questionnaire consisted of 8 questions with 5 Likert scale responses (0-4) to be filled out by the respondents (Nasif et al., 2011). The severity nausea and vomiting was measured after the first 12 hours from the insertion of chemotherapy drugs – before the administration of lemon aromatherapy – and

the next 12 hours after the administration of lemon aromatherapy. The researcher explained to the respondents about how to use lemon aromatherapy. Lemon aromatherapy should be used after 12 hours from the administration of chemotherapy drugs by dripping 2-3 drops of lemon aromatherapy essential oil on tissue paper and then inhaling it 3 times of breathing for 30 minutes.

The researcher did not observe until the process of chemotherapy was completed but returned to the respondents the next day to scale the intensity of nausea and vomiting they might experience after applying the lemon aromatherapy by distributing questionnaires. The result of the demographic questionnaire and the intensity of nausea and vomiting were made in the form of percentages and narratives. Bivariate analysis was used to identify the difference in the intensity of nausea and vomiting pre and post the lemon therapy intervention (Koensoemardiyah, 2009).

The sample size in this current study was 34 respondents. In the normality test, it was found out that the data was not normally distributed. Therefore, the data analyzed by the Wilcoxon for the intervention group with a p-value = 0.001. The significant level used was 0.05 which means that if  $p < \alpha = 0.05$ , the hypothesis is accepted, indicating that there is an influence of lemon aromatherapy on nausea and vomiting's intensity that reported by the patients with breast cancer who given the chemotherapy in the Chemo Center Room, RSAL Dr. Ramelan Surabaya

## RESULTS

The study was conducted in the Chemo Center Room of RSAL Dr. Ramelan Surabaya, and the data collection was carried out on January 15-18, 2019. The respondents were 34 breast cancer patients who getting chemotherapy and has nausea

and vomiting during that therapy. The demographic data were obtained through a questionnaire filled out by the respondents.

**Table 1: Characteristics of Respondents Based on the Demographic Data of the Breast Cancer Patients at the Chemo Center Room RSAL Dr. Ramelan Surabaya 15-18 January 2019 (n = 34)**

Demographic data	Category	Frequency (f)	Percentage (%)
Ages	19-29	2	5,9
	30-40	5	14,7
	41-51	11	32,4
	>52	16	47,1
Marital Status	Married	29	85,3
	single	3	8,8
	Divorced	2	5,9
Number of Children	1 child	5	14,7
	2 children	18	52,9
	> 2 children	7	20,6
	Do not have children	4	11,8
Live with	Family	32	94,1
	Relatives	1	2,9
	Orphanage	0	0
	Etc.	1	2,9
Chemotherapy Cycle	2	2	5,9%
	3	5	14,7%
	4	16	47,1%
	5	5	14,7%
	6	6	17,6%

**Table 2: Characteristics of Respondents by Drug Administration to the Breast Cancer Patients at Chemo Center Room of RSAL Dr. Ramelan Surabaya, 15-18 January 2019 (n = 34)**

No	Name of Drugs given	Frequency (f)	Percentage (%)
1	Brexel, Epirol	7	20,6%

2	Carboplatin, Dextotaxel	1	2,9%
3	Carboplatin, Funcopac	1	2,9%
4	Carboplatin, Paclitaxel	11	32,4%
5	Carboplatin, Paxomed	6	17,6%
6	Cyclophosphamide	1	2,9%
7	Cyclophosphamide, brexel	1	2,9%
8	Cyclophosphamide, dextrorubicin	1	2,9%
9	Cyclophosphamide, epirubicin	1	2,9%
10	Cyclophosphamide, 5FU	1	2,9%
11	Dextotaxel, epirubicin	1	2,9%
12	Dextotaxel, dextrorubicin	1	2,9%
13	Paclitaxel, epirubicin	1	2,9%
Total		34	100

**Table 3: The effect of Lemon Aromatherapy on the Intensity of Nausea and Vomiting experienced by the Breast Cancer Patients as the effect of Chemotherapy in the Chemo Center Room of RSAL Dr. Ramelan Surabaya, 15-18 January 2019 (n = 34)**

The intensity of nausea and vomiting	before intervention		After intervention	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
No nausea and no vomiting	0	0	1	2,9
Mild	11	32,4	30	88,2
Medium	21	61,8	2	5,9

Heavy	2	5,9	1	2,9
Total	34	100	34	100
Result of Wilcoxon Test $p = 0,000$				

The result showed that the breast cancer patients before being given lemon aromatherapy was mostly on the medium scale of nausea and vomiting, amounting to 21 respondents (61.8%). The amount changed after being given lemon aromatherapy was mostly on a mild scale, amounting to 30 respondents (88.2%). This indicated that there was a decrease in the degree of nausea and vomiting from a medium-scale to a mild scale. In other words, there is an increase in the number of respondents whose intensity of nausea and vomiting decreases from the medium scale to the mild scale after the administration of lemon aromatherapy. Based on the result of the Wilcoxon test, it was found out that there was an effect of lemon aromatherapy on nausea and vomiting's intensity that reported by the patients with breast cancer who given the chemotherapy in the Chemo Center Room of RSAL Dr. Ramelan Surabaya with a p-value of 0.001 ( $<0.05$ ).

## DISCUSSIONS

The result supports previous studies that conducted by Widagdo. His research showing that "Lemon aromatherapy and progressive muscle relaxation affected the decrease of the intensity of nausea and vomiting during chemotherapy" (H. & K., 2007). The benefits of lemon aromatherapy include improving mood, accelerating healing of diseases, improving health and well-being of the body, mind, and spirit (14,12). Zorba and Isdemir (2018) explained about aromatherapy that showing in their research, "The approaches of nonpharmacological are recommended for CINV's management (Chemotherapy Induced Acute Nausea and Vomiting). It is

often combined with alternative medicines such as massage" (Widagdo, 2014). Potter, et al. (2011) conducted research in different groups with the number of participants are 34 the cancer patients during autologous HPC infusion given citrus therapy. The intervention group has relief nausea and vomiting level (RI, 2015). Aromatherapy does not only work when there is interference but also maintain the stability or balance of the system contained in the body. Fellowes, Barnes and Wilkinson (2004) said that aromatherapy confer short term benefits on psychological wellbeing and it may also reduce of nausea and vomiting's symptom in patients who are given treatment of cancer (D et al., 2016). The result of this current study is also supports the result of the research conducted by Auwaliyah showing that the administration of lemon aromatherapy has the effect of reducing nausea and vomiting in the first trimester of pregnancy ( $p = 0.002$ ) (Apriyani, 2010).

The self-nursing in providing comfort to reduce or eliminate any discomfort due to the side effects of chemotherapy is by giving complementary therapy. Aromatherapy, as a part of complementary therapy, can be used to increase of the quality of cancer patient's life (Dharma, 2011). Aromatherapy is extracted from roots, flowers, leaves, and stems of plants as well as from certain trees. One of the aromatherapies that are widely used is lemon aromatherapy (Citrus Lemon) (Setyoadi & Kushariyadi, 2011). The benefits of lemon aromatherapy include improving mood, accelerating healing of diseases, and improving health and well-being of the body, mind, and spirit (Subagyo, 2013). It is often combined with alternative medicines. Aromatherapy does not only work when there is interference but also maintain the stability or balance of the system contained in the body. It may also

reduce of nausea and vomiting in patients who given treatment of cancer (Widagdo, 2014). Lemon aromatherapy is one of the complementary therapies of non-pharmacological treatment to breast cancer patients who experience nausea, vomiting due to chemotherapy through the olfactory process.

## CONCLUSIONS

Lemon aromatherapy reduces the intensity of nausea and vomiting experience on the patient's breast cancer as the chemotherapy's effect in the Chemo Center Room of RSAL Dr. Ramelan Surabaya. The odor will then be transmitted as a message to the olfactory center located behind the nose. Neuron cells interpret the odor and deliver it to the limbic system, which is then sent to the hypothalamus. The contents of the elements of aromatherapy will physiologically correct the imbalance that may occur in the body. The calming odor stimulates an area in the brain called the raphe nucleus to produce serotonin. It functions to generate a sense of comfort and calm, which may decrease the reported of nausea and vomiting's complaint.

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