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Paper 1

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Title: 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

Background: Breast cancer is the growth and breeding of abnormal cells that appear in the breast tissue. One of the common treatments for it is a 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. ¹ The purpose of this current study 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.

Method: The design of this study was the pre-experimental with pre- and post-test without control. The independent variable is lemon aromatherapy while the dependent variable is the intensity of nausea and vomiting. The sampling technique was nonprobability purposive sampling. There were 34 breast cancer patients taken as the sample. The data collection utilized questionnaires. The data collected were analyzed using the Wilcoxon Test ($\alpha = 0.05$).

Result and discussion: The results indicated that there was a significant effect of the lemon aromatherapy on the intensity of nausea and vomiting experienced by the respondents, with the

value of Wilcoxon test p (0,000). Lemon aromatherapy stimulates the raphe nucleus to produce serotonin which functions to generate a sense of comfort and calm. For that reason, it can be used as an alternative to take care of nausea and vomiting experienced by the breast cancer patients as the side effect of chemotherapy.

Keywords: *lemon aromatherapy, nausea & vomiting, chemotherapy*

Introduction

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 USA showed that 22% - 50% of the patients undergoing chemotherapy experienced nausea and vomiting (Genc et al., 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 complementary therapy that may be applied besides the conventional treatment (Setyoadi & Kushariyadi, 2011: 145). Orange oil is one of the aromatherapies that are refreshing and useful for treating nausea, flatulence, and headaches, as well as arousing appetite (Jaelani, 2009: 45).

Material and Method

This current study applied a pre-experimental research design with a pre- and post-test approach without control (self-control) (Dharma, 2011). 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 (Nursalam, 2017: 171). The number of breast cancer patients who experienced ²nausea and vomiting due to chemotherapy and met the sample requirements was 34 people taken through the purposive sampling technique.

The independent variable was the lemon aromatherapy while the dependent variable was the intensity of nausea and vomiting. The intensity of nausea and vomiting was measured ²using 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. The intensity of 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 measure 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 before and after the intervention.

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 statistical test used was 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 the intensity of nausea and vomiting experienced by the breast cancer patients as the side effect of chemotherapy in the Chemo Center Room, RSAL Dr. Ramelan Surabaya.

Results and Discussions

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 research subjects (respondents) were 34 breast cancer patients who experienced nausea and vomiting as the side effect of chemotherapy. The demographic data were obtained through a questionnaire filled out by the respondents.

The result showed that the intensity of nausea and vomiting as the effect of chemotherapy before being given lemon aromatherapy was mostly on the medium scale, amounting to 21 respondents (61.8%). The results also showed that the intensity of nausea and vomiting 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 the intensity of chemotherapy-related nausea and vomiting experienced by the breast cancer patients in the Chemo Center Room of RSAL Dr. Ramelan Surabaya with a p-value of 0,000 (<0.05).

The result is in line with the result of the research conducted by Widagdo (2014), showing that lemon aromatherapy and progressive muscle relaxation affected the decrease of the intensity of nausea and vomiting during chemotherapy. This opinion was supported by Purwanto (2013) and Kiki (2009) in Setyoadi & Kushariyadi (2011) who state that the benefits of lemon aromatherapy include improving mood, accelerating healing of diseases, improving health and well-being of the body, mind, and spirit. 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 the effects of ²nausea and vomiting in patients undergoing cancer treatment. The result of this current study is also in line with the result of the research conducted by Auwalayah (2012) showing that the administration of lemon aromatherapy has the effect of reducing nausea and vomiting in the first trimester of pregnancy ($p = 0.002$).

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 improve the quality of life of cancer patients (Boehm, et al., 2012). Aromatherapy refers to the use of essential oils 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) (Rusilanti, 2013). Purwanto (2013: 52) and Kiki (2009 in Setyoadi & Kushariyadi, 2011: 148) state that the benefits of lemon aromatherapy include improving mood, accelerating healing of diseases, and improving health and well-being of the body, mind, and spirit. 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 the effects of nausea and vomiting in patients

undergoing cancer treatment. 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 experienced by breast cancer patients as the side effect of chemotherapy 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. Physiologically the content of the elements of aromatherapy materials will correct the imbalance that occurs in the body. The smell that causes a sense of calm will stimulate an area in the brain called the raphe nucleus to produce serotonin. It functions to generate a sense of comfort and calm which may reduce the intensity of nausea and vomiting (Primadiati, 2002 in Setyoadi & Kushariyadi, 2011).

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