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The effects of preoperative aromatherapy massage on anxiety and sleep quality of colorectal surgery patients: A randomized controlled study

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ABSTRACT

Aims: To examine the effects of aromatherapy massage on anxiety and sleep quality in patients undergoing colorectal surgery in the preoperative period.

Background: In recent years, there has been an increase in the number of studies conducted on aromatherapy massage. It is stated that studies conducted on aromatherapy massage for anxiety and sleep quality reveal contradictory results and that more research is required on the issue.

Design: A randomized controlled trial.

Methods: Eighty patients undergoing colorectal surgery were randomly assigned to experimental and control group. To the experimental group (n = 40), aromatherapy massage was applied in accordance with the "Back Massage Guide" using 5% lavender oil (Lavandula Hybrida) for ten minutes before surgery and the morning of surgery. The control group received standard nursing care in compliance with the hospital procedure. Data were obtained by the State Anxiety Inventory (SAI) and Richard-Campbell Sleep Questionnaire (RCSQ). Results were analyzed using the *t*-test, Chi-square test or Fisher's exact test.

Results: There was no baseline difference between the groups. A statistically significant difference was found between the experimental and control group in terms of the SAI and RCSQ mean scores recorded on the morning of surgery. It was determined that the SAI and RCSQ mean score of the experimental group after aromatherapy massage on the morning of surgery decreased when compared to that of the evening before surgery.

Conclusions: It was found that aromatherapy massage with lavender oil increased the sleep quality and reduced the level of anxiety in patients with colorectal surgery in the preoperative period.

1. Introduction

Recent research has demonstrated that the incidence of colorectal cancer is in an increasing trend and it is likely that the number of colorectal cancer survivors is going to increase in the near future if the advances in detection treatment and surgical technique are taken into consideration.[1] Colorectal cancer is the second most common cancer in women and the third most common cancer in men.[2]

The incidence of colorectal cancer is rapidly increasing in developed countries. In the United States, 135,430 new colon and rectum cancer cases were estimated to be diagnosed in 2017, and 50,260 people were expected to die of this disease.[3] In Europe, 345,000 colorectal cancers were diagnosed in 2012.[2]In Turkey, colorectal cancers are the third most common cancer type among males (8.3%) and males (9.1%).[4]

In colorectal cancer, the primary treatment is surgical intervention. However, the postoperative recovery is not only affected by surgical procedures, but also by the individual's health condition and anxiety.[5] The pre-operative anxiety is one of the common problems faced by patients and is seen in about 11–80% of patients who are about to undergo surgery.[6] In a study conducted with patients who underwent colorectal surgery, it was reported that patients with colon and rectum resections experienced anxiety.[7] At the same time, patients who have concerns and fear about their lives and future in the preoperative period may also experience sleep problems due to anxiety and stress.[5,8,9]

Reduction of anxiety and enhancing quality of sleep increase patient satisfaction and enable the individual to undergo a successful surgical operation.[10–12] Today, integrative approaches such as aromatherapy are used in addition to medication to enhance quality of sleep and reduce anxiety.[13–16] Furthermore, nurses are also responsible for nursing practices involving the use of essential oils supported with evidence-based practices.[17] It has been reported that aromatherapy has many positive effects on psychological factors such as depression, anxiety and stress and physiological factors such as sleep, fatigue, blood pressure, nausea, vomiting, pruritus and pain.[13,14,16,18–23]

Nurses have certain responsibilities to ensure that patients who undergo colorectal surgery receive a successful operation, provide

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patient satisfaction, and maximize patients' well-being. In this context, reducing the anxiety level of patients and increasing their sleep quality in the preoperative period is an undeniably important part of the holistic nursing approach. In the literature review, it was seen that the studies conducted on aromatherapy massage within the framework of evidence-based approach revealed contradictory results and that there was a need for further research on this subject. Furthermore, a study on the effect of lavender oil massage on anxiety and sleep quality in the preoperative period was found neither in Turkey nor in the world. It is thought that this study will shed light to the literature about the effects of aromatherapy massage using lavender oil on anxiety and sleep quality in the preoperative period.

1.1. The aim of the study

The aim of this study is to the effects of lavender oil aromatherapy massage on the anxiety and sleep quality of patients who will undergo colorectal surgery.

1.2. Hypotheses

H1. In patients undergoing colorectal surgery, aromatherapy massage reduces the level of anxiety in the preoperative period.

H2. In patients undergoing colorectal surgery, aromatherapy massage enhances sleep quality in the preoperative period.

2. Methods

2.1. Design

This study was designed as a randomized controlled trial with pre-test and post-test model. The sample of the research consisted of patients who would undergo colorectal surgery at the general surgery unit of a university hospital in Turkey between January 25th and May 31st, 2016. Persons with the following characteristics were not included in the sample of the research; younger than 18 years old, susceptible to lavender oil, cognitively impaired, presence of mental illness (delirium, delusions), use of antidepressants, anti- histamines, diuretics, hypnotics, benzodiazepines and narcotic derivatives that affect the quality of sleep, presence of any respiratory disorder such as asthma, use of other complementary and integrative practices during treatment, inability to or undesirable conditions for receiving massage and unwillingness to participate in the research. The sample size was determined by performing a power analysis.

In the G-Power statistical program, power analysis was performed using the STAI mean scores before and after the aromatherapy massage group of Wu et al.[14] The sample size for each group was calculated to be 25 in the power analysis based on type 1 error 0.05 and type 2 error 0.20 (80%) power. Eighty patients were included in the study; 40 for the experimental group and 40 for the control group. For the post power analysis, the G-Power 3.0.10 statistical power analysis software was used. Also, the State Anxiety Inventory (SAI) and Richard-Campbell Sleep Questionnaire (RCSQ) were used to calculate the mean scores at the night before the surgery and the morning of the surgery to reveal a total power of 99%.

2.2. Randomization

The individuals to undergo colorectal surgery who were in compliance with the sampling inclusion criteria were determined via electronic patient registration system. Patients on the surgery list of the following day were determined and a selection system was conducted where the first patient on the list was included in the experimental group while the next was included in the control group respectively (Chart 1).

2.3. Interventions

In order to determine the functionality of the prepared questionnaire form and the scales used, a pre-test was performed with a total of 6 patients; 3 from the control and 3 from the experimental group between January 25 and February 5, 2016 in the General Surgery Clinic of the hospital where the study was conducted. After the pre-test, a rearrangement of the forms was not required and the patients who had taken the pre-test were excluded from the sample.

2.3.1. Experimental group

After the groups were determined by the randomization method, each patient in the experimental group was informed about the aim of the study in the patient room between 16.00 and 17.00 h, and after receiving their written approval, the patients were asked to fill in the Individual Identification Form, Richard-Campbell Sleep Questionnaire (RCSQ) and State Anxiety Inventory (SAI). The forms were filled by the patients in approximately ten minutes.

Massage was applied twice by the certified researcher in accordance with the "Back Massage Guide" using 5% lavender oil (Lavandula Hybrida) for ten minutes between 19:00–21:00 h before surgery and 10 min between 06.30–08.00 h on the morning of surgery. After the morning session was over, patients were asked to fill in the RCSQ and SAI again.

The reason for choosing the Lavandula Hybrida essential oil is its chemical structure composed of esters which are sedative and calming.[24,25,26] Essential oils used in aromatherapy are used after being diluted with fixed oils as their application can irritate the skin.[17] For this reason, sweet almond oil was used to dilute lavender oil. In the research, the experimental group was given a 5% mixture obtained by adding 5 ml of lavender oil to 95 ml almond oil.[27]

2.3.2. Control group

Each patient in the control group was informed about the aim of the study in the patient room between 16.00 and 17.00 h, and after receiving their written approval, the patients were asked to fill in the Individual Identification Form, RCSQ and SAI. Patients in the control group received standard nursing care in compliance with the hospital procedure applied in the preoperative period. At 06.30-08.00 h on the morning when the patients were scheduled for surgery, they were asked to fill in the RCSQ and SAI again.

2.4. Outcome measures

In the research, Individual Identification Form, Richard-Campbell Sleep Questionnaire and State Anxiety Inventory were used for data collection. In accordance with the literature.[13,24,28] the Individual Identification Form consisted of questions on the participants' age, gender, marital status, social security, educational status, working status, cigarette-alcohol consumption, other health problems, regular use of medication, previous surgeries undergone and the condition of having received training on the surgery. These questions were answered by the patients at the first meeting after they had agreed to participate in the research.

The preoperative anxiety level of colorectal surgery patients was obtained using the State Anxiety Inventory. The State Anxiety Inventory was developed by Spielberger et al. in 1970. A score of 0–19 points on the scale indicates that there is no anxiety while 20–39 points indicate mild, 40- 59 points indicate moderate, 60–79 points indicate severe anxiety, and scores above 60 points indicate that individuals need professional help. The validity and reliability of the Turkish version of the inventory was made by Oner in 1977. The Cronbach α value for this study is 0.92.

The sleep quality of the patients was obtained with the Richard-Campbell Sleep Questionnaire (RCSQ). Developed by Richards in 1987, RCSQ is a five-item scale that assesses the perceived sleep depth, sleep