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EFFECTS OF AROMATHERAPY MASSAGE ON THE SLEEP QUALITY AND PHYSIOLOGICAL PARAMETERS OF PATIENTS IN A SURGICAL INTENSIVE CARE UNIT

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Abstract

Background: Surgical pain is experienced by inpatients with clinical, disease-related concerns, unknown encounters after surgery, quality of sleep, restrictions in position after surgery is known to be serious. The study was conducted to determine the effect of aromatherapy massage on quality of sleep and physiological parameters in surgical intensive care patients.
Materials and Methods: This is an experimental study. The sample of this study consisted of 60 patients who were divided into two groups as experimental group and control group including 30 patients in each one. The participants were postoperative patients, absent complications, who were unconscious and extubated. A data collection form on personal characteristics of the patients, a registration form on their physical parameters and the Richards-Campbell Sleep Scale (RCSQ) were used to collect the data of the study.
Results: The Richards-Campbell Sleep Scale indicated that while the experimental group had a mean score of 53.80 ± 13.20, the control group had a mean score of 29.08 ± 9.71 and there was a statistically significant difference between mean scores of the groups. In a comparison of physiologic parameters, only diastolic blood pressure measuring between parameters in favor of an assembly as a statistically significant difference was detected.
Conclusions: Results of the study showed that aromatherapy massage enhanced the sleep quality of patients in a surgical intensive care unit and resulted in some positive changes in their physiological parameters.

Key Words: Intensive care patients, aromatherapy massage, sleep quality, physiological parameters.

Introduction

In intensive care units (ICUs), the physical conditions of patients are monitored to follow their survival function; special treatment is applied, and complex devices are used in those areas that require considerable attention (Demir & Dramalı, 2002). These patients are exposed to a variety of stimuli from the ICU environment, over which they have no control. Therefore, ICU patients are faced with problems such as sensory input and sensory deprivation (Seviğ & Ovayolu, 2011; Tuna, 2011). Movement and restriction in body posture as well as social isolation lead to sensory deprivation in critically ill patients, while human voices and intubation may represent painful interference caused by sensory overload. Both sensory inputs in intensive care unit patients may result in problems such as decreased cognitive function, irritability, aggression, disruptions in the sleep–wake cycle, which are associated with symptoms of disorientation and are reported to lead to the development of ICU syndrome (Dedeli & Akyol, 2005; Frisk & Nordström, 2003; Hweidi, 2007).

Complementary therapies are administered in addition to medical therapy in order to support care of patients and enhance their quality of life. Complementary therapy methods can be effective in controlling or preventing intensive care-related complications including sleep disorder, pain and anxiety and also reducing physiological indicators such as pulse, blood pressure, and respiration by stimulating sensory perceptions and creating a relaxation effect (Wilkinson & Simpson, 2002).

Massage therapy and aromatherapy are among the most common complementary and alternative therapies (Burns et al., 2007). Aromatherapy, one of the complementary therapies commonly used by nurses, has been shown to lower blood pressure and heart rate, as well as to reduce pain and anxiety (Akın & Khorshid, 2007; Khorshid &Yapucu, 2005; Kyle, 2006). One of the essential oils used in aromatherapy is lavender. Lavandula angustifolia Mill (Lavender) is well known as a powerful aromatic and medicinal herb (Djenane et al., 2012). The active ingredients of essential oil of lavender can quickly be absorbed through skin and their sedative, antidepressant, and muscular relaxant effects, as well as their positive effects on the quality of sleep and feeling of wellbeing have been shown (Gedney et al., 2004; Ejder Apay et al., 2012). Lavender is a safe herb and no toxicity has been reported (Cavanagh & Wilkinson, 2002). Aromatherapy massage combines the positive effects of massage and aromatherapy, resulting in a complementary therapy that is more effective than either method alone (Kuriyama et al., 2005). As a treatment, aromatherapy massage

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focuses on controlling symptoms. The efficacy of aroma in reducing the development of illness and stress has been proven, resulting in improvements to health (Buckle, 2003; Louis & Kowalski, 2002; Watt et al., 2008). However, in studies conducted to examine hospitalized patients' physiological parameters and sleep, ICU patients have not been included to date. This study was therefore conducted to determine the effects of aromatherapy massage on physiological parameters and quality of sleep in postsurgical intensive care patients.

Materials and Methods

In this study, pre-tests and post-tests were carried out experimentally for both the control group and the experimental group. The data of the study were collected from patients in the Intensive Care Unit of Ataturk University Research Hospital, and the study was conducted between November 2013 and January 2014.

The population of the study consisted of patients who had undergone general surgery and who were in the hospital's intensive care unit one day postoperative between the dates specified. The sample of the study consisted of 60 patients who were divided into two groups as experimental group and control group including 30 patients in each one. For each group, it was assumed that the power analysis of the study would be 99% when 30 patients with .05 alpha level and 95% reliability levels were included in the study. Thus, a total of 60 patients fulfilling the inclusion criteria were assigned to the control group or the experimental group (30 in the experimental group, 30 in the control group).

The patients were assigned to the experimental group or the control group by using convenience sampling. Strict inclusion and exclusion criteria were established to minimize sample variability. Patients were eligible to participate if they were ≥18 years old, could speak Turkish, were postoperative patients, patients without open scars, absent complications, who were unconscious and extubated. Exclusion criteria were an emergency operation, chronic pain problems, or any hearing impairment, cognitive impairment, intubated patients difficulties cooperating during measurements, and hemodynamic instability. Prior to the study, patients in the experimental group and in the control group had no interaction.

Data Collection Tools: For the collection of research data, a data collection form was used to gather information on the personal characteristics of patients in the intensive care unit. To determine the physical parameters of patients, the patient registration form and the Richards-Campbell Sleep Questionnaire (RCSQ) were used. On the data collection form, patient characteristics such as age, gender, experience with intensive care, pain levels, and sleep duration, were identified. There are questions where the average. The Richards-Campbell Sleep Questionnaire (RCSQ) was developed in 1987. In 2010, Karaman Ozlü and Ozer adapted the RCSQ for Turkish validity and reliability in order to accurately evaluate the depth of night sleep, sleep latency time, waking frequency, awake time, wake-up time, the effect of noise and levels of ambience on the quality of sleep. These factors were assessed via a scale consisting of 6 items. Between each item, with the visual analog scale of 0 to 100, are evaluated on technical charts located. Scores of "0–25" indicate very poor sleep; scores of "76–100" indicate very good sleep. The sleep quality of patients increased in proportion to increases in the scale scores (Karaman Ozlu & Ozer, 2015). A registration form was used to document the physical parameters of the experimental and control groups of hospitalized patients in the ICU before and after aromatherapy massage. All data were recorded in both groups before the intervention, the 15 'before applying, 15' after applying, 30' after applying, 60' after applying, 120' after applying by the researcher.

Collecting Data: Data were collected via face-to-face interviews with patients in the intensive care unit by the researcher. The physical parameters of patients in both the experimental and control groups were tested while they were in bed, before and after lavendar oil was applied to their skin via soft and circular hand movements. The method of massage was whole body massage. Deltoid muscles, arms, back, shoulder, thighs, palms and fingers, front and posterior parts of the legs, forearms, belly and chest, front and back of feet, auxiliaries and neck muscles of the patients were massaged.

Initiatives Tools: Lavendar oil was used as a tool in the research initiative. The oil was diluted with in 1:1 ratios. The lavender oil used was examined in the laboratories of the Department of Pharmacognosy by pharmacy faculty at Atatürk University and was found suitable for use. Experts are used in accordance with the proposal. Lavender oil is less toxic and result in fewer allergic effects. in showing crucial essential oils, essential oil used in a variety of skin care applications and to treat dermatological problems. In this study, use of the lavendar oil was in accordance with the 5179 law (Ministry of Agriculture and Rural Affairs Directorate of Protection and Control). February 25, 2005. The lavender oil was produced by the Natürsan Food and Chemical Industry Limited Company (Cürcani &Tan, 2014).

Nursing Initiative: Patients in the experimental group by the researcher to the region at 22:00 non-surgical wounds in the bedroom after a routine maintenance was applied for 10–15 minutes by the researcher in an appropriate physical environment. In order to respect patient privacy, curtains were drawn around patient beds. To test for the possibility for the development of allergic reaction, the lavender oil was applied to a small area on the inner portion of the patient's arm before full application. Patients on which the lavendar oil was applied did not develop any reaction. Aromatherapy massage is a maintenance that is most easily applied to patients while they are in bed. To ensure absorption, the surface of the skin was cleaned before 3–5 ml of oil was applied to the patient's skin using acircular motions.After receiving the routine nursing care patients in the control group was not given any attempts by researchers to these patients.

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Evaluation of Data: We analyzed data by using the Statistical Package for the Social Sciences (SPSS 16.0; IBM, Armonk, NY) for Windows (Microsoft, Redmond, WA). Percentiles were used to examine the defining characteristics of the experimental and control groups; pre-test and post-test scores of control variables, chi-square, and arithmetic mean for both groups were compared. The square, standard deviation, independent groups t-test, and repeated measurements (using Mauchly's test) were evaluated. When examining differences between the groups, 0.05 was noted as the significance level; $p > 0.05$ indicated a significant difference between the groups, and $p < 0.05$ indicated no significant difference between the groups.

Results

We found no statistically significant differences in demographic variables between the groups (Table 1).

The groups' mean scores were compared, and the RCSQ scores are displayed in Table 2. RCSS measuring scores averaged 53.80 + 13.20; the control group score was calculated at 29.08 ± 9.71, and a statistically significant difference between the mean scores of the two groups was detected ($p < 0.001$). A comparison of physiological parameters of both groups is displayed in Table 3. Fifteen minutes before application, the measurements between groups showed no statistically significant difference ($p > 0.05$). For 15, 30, 60, and 120 minutes after the pulse measurements, group differences in the systolic pressure and respiration parameters were not found to be statistically significant ($p > 0.05$); the diastolic blood pressure was the only parameter for which a statistically significant difference was detected ($p < 0.05$). After repeated measurements of all cylinders, the physiological parameters as in all advanced level statistical significance ($p < 0.001$ later amounts).

Table 1: Comparison of Group Distribution and Socio-Demographic Characteristics

Special Features	**Experiment** (n= 30)		**Control** (n=30)		Test and p value
	n	**%**	**n**	**%**	
Age					
21-35	7	23.3	5	16.7	X^2=1.82
36-50	7	23.3	4	13.3	p>0.05
51 and ↑	16	53.4	21	70.0	
Gender					X^2=1.68
Woman	16	53.3	11	36.7	p>0.05
Male	14	46.7	19	63.3	
Education					
Illiterate	4	13.3	1	3.3	X^2=3.29
Primary education	12	40.0	17	56.7	p>0.05
High school	12	40.0	9	30.0	
University	2	6.7	3	10.0	
Marital status					X^2=0.80
Married	9	30.0	6	20.0	p>0.05
Single	21	70.0	24	80.0	
Cause of hospitalization in intensive care					
Mastectomy	1	3.3	2	6.7	
Gastrectomy	5	16.7	7	23.3	X^2=2.87
Colostomy	7	23.3	3	10.0	p>0.05
Cholecystectomy	6	20.0	6	20.0	
Liver resection	3	10.0	3	10.0	
Liver hydatid	5	16.7	4	13.3	
Splenectomy	3	10.0	5	16.7	
Intensive care experience					
Yes	3	10.0	5	16.7	X^2=0.57
No	27	90.0	25	83.3	p>0.05
Daytime sleep condition					
Sleeping	6	20.0	11	36.7	X^2= 2.05
Unsleeping	24	80.0	19	63.3	p>0.05
Total sleep time at night to sleep					
1 hour					
2 hours	1	3.3	4	13.3	X^2=2.04
3 hours	5	16.7	5	16.7	p>0.05
4 hours	10	33.3	9	30.0	
	14	46.7	12	40.0	
State division of night sleep					
Divided	23	76.7	28	93.3	X^2=3.26
Fractionation	7	23.3	2	6.7	p>0.05
Waking in the morning shape					
Spontaneous					
Noisily	1	3.3	-	-	X^2=1.03
Due to treatment	14	46.7	14	46.7	p>0.05
	15	50.0	16	53.3	

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Table 2: Comparison of the Mean RCSQ Scores of the Groups

Scale	Groups	Average Score and Standard Deviation	Test and p value
RCSQ	**Experiment**	53.80±13.20	t=8.26
	Control	29.08±9.71	**p<0.001**

Table 3: Comparison of the Group of Physiological Parameters

Time	Physiological Parameters	Groups		Test and p value
		Experiment	**Control**	
		$\overline{X}$ **± SS**	$\overline{X}$ **± SS**	
The application, 15 'before	Pulse	87.43±15.58	84.47±17.65	t=0.69 p>0.05
	Systolic blood pressure	127.40±17.60	130.87±17.82	t=0.75 p>0.05
	Diastolic blood pressure	72.20±12.53	75.20±10.80	t=0.99 p>0.05
	Respiratory	19.93±4.26	19.83±5.27	t=0.80 p>0.05
The application, 15' after	Pulse	86.33±13.39	81.70±17.67	t=1.14 p>0.05
	Systolic blood pressure	126.37±16.35	130.17±17.92	t=0.85 p>0.05
	Diastolic blood pressure	69.43±11.48	75.10±9.11	t=2.11 p<**0.05**
	Respiratory	18.60±3.30	18.80±4.32	t=0.20 p>0.05
The application, 30 'after	Pulse	84.47±12.70	83.97±18.17	t=0.12 p>0.05
	Systolic blood pressure	124.16±15.09	131.66±16.88	t=1.81 p>0.05
	Diastolic blood pressure	70.37±11.24	75.80±8.89	t=2.07 **p<0.05**
	Respiratory	19.43±3.68	19.33±4.30	t=0.09 p>0.05
The application, 60 'after	Pulse	83.33±10.95	84.40±17.15	t=0.28 p>0.05
	Systolic blood pressure	122.80±15.29	131.27±18.20	t=1.95 p>0.05
	Diastolic blood pressure	69.27±10.05	73.57±8.64	t=1.77 p< **0.05**
	Respiratory	18.90±3.67	19.10±3.78	t=0.69 p>0.05
The application 120 'after	Pulse	83.10±12.20	83.83±17.62	t=0.18 p>0.05
	Systolic blood pressure	123.00±14.93	129.87±16.22	t=1.70 p>0.05
	Diastolic blood pressure	69.30±10.51	74.63±8.16	t=2.19 p< **0.05**
	Respiratory	18.73±3.75	19.13±3.98	t=0.40 p>0.05
Test and p value	Pulse	Mauchly's W=0.11 **p<0.001 later**	Mauchly's W=0.58 p **p<0.05**	
	Systolic blood pressure	Mauchly's W=0.44 **p<0.001 later**	Mauchly's W=0.40 **p<0.05**	
	Diastolic blood pressure	Mauchly's W=0.41 **p<0.001 later**	Mauchly's W=0.41 **p<0.05**	
	Respiratory	Mauchly's W=0.40 **p<0.001 later**	Mauchly's W=0.32 **p<0.05**	

Discussion

Surgical pain experienced by inpatients with clinical, disease-related concerns, unknown encounters after surgery, quality of sleep, restrictions in position after surgery is known to be serious (Önler, 2008). These patients are unable to take advantage of the relaxing effects of sleep for a significant portion of the time spent asleep and awake. A poor quality of sleep negatively affects an individual's immune system and wound-healing, as well as a patient's cognitive functions, and is detrimental to health by increasing the levels of stress (Karaman Ozlu & Ozer, 2015). Moreover, negative effects on the patient's quality of sleep leads to increased stress levels and to negative changes in physiological parameters. This study used lavender oil in aromatherapy massage treatment. Lavendar oil has been used for many years to provide sedation; it has also been used successfully in areas such as stress management and depression. Lavender oil, in particular, is mentioned frequently for its sedative affect on the limbic system. Due to these features, lavendar oil has been suggested to have positive effects on the quality of sleep (Yılmaz, 2008).

The RCSQ mean score was 53.80±13.20 in the experimental group; the mean score in the control group was 29.08±9.71. In sleep studies of ICU patients conducted by Frisk and Nordström, (2003) the RCSQ descriptive mean scores were 51.42 in the experimental group and 45.5 in the control group. The study findings in the experimental group, which are consistent with those mentioned in the research, indicates that the lavender oil used in this study positively affected the quality of the participants' sleep.

Sleep is a resting state that is known but unexplained. Living in the process, so be aware of that consciousness can not be detected, irrational 'lives, there is a time when the place of action of inaction order (Önler, 2008). In the

control group, 63.3% of the patients reported experiencing daytime sleepiness. In the experimental group, the ratio was 80%. In a similar study by Yilmaz (2008), which focused on the sleep state of ICU patients, daytime sleepiness was found to be 39.1% in the control group. The ICU environment is an extremely significant source of anxiety for individuals. Therefore, even if individuals are experiencing sleep problems, their sleep requirements may change based on their situation. In a study by Ozdemir (2012), 18.6% of the women participants reported that the treatment used in the research improved their insomnia. As reported in the literature, lavender oil had a positive result in sleep problems among patients with a variety of diseases (Ozdemir & Oztunç, 2013).

Withholding touch is a way to determine how emotions are affected by touch. The effects of activation energy in touching the surface of the skin is in question. Touch, as applied by nurses, does not require special training. When a patient feels touching, he or she benefits from a psychological value: Touching increases the patient–nurse interaction and decreases the patient's physiological and psycho-social problems; it also improves respiration and physiological recovery by decreasing the blood pressure and pulse rate (Tracy at al., 2005).

A comparison of the experimental and control groups showed no no statistically significant differences in the physiological parameters prior to the application of the aromatherapy massage. There were no significant differences in the control group in the post-implementation measurements; however, a significant difference in diastolic blood pressure was demonstrated in the experimental group. Significant differences in all the physiological parameters in the experimental group were found in repeated measurements. A study by Wolfson and Hewitt (1992) was conducted on general ICU patients using the application of foot massage with lavender oil. patients, depending on the massage pulse, systolic blood pressure was found positive changes in respiratory rate measurement. Ozdemir (2012), in a study in which aromatherapy was applied to ICU patients, there was a significant change in the pulse rate of patients. Saeki (2000) found that the implementation of a foot bath with lavender oil changed the respiratory rate of nursing students. This result is consistent with the study results.

Conclusions and Recommendatıons

Aromatherapy massage has a positive effect on patients' quality of sleep. Differences in the measurements of physiological parameters between groups prior to the application were found to be significant. In addition, differences were found in the measurements of the diastolic blood pressure parameters after the application.

Based on these results**,** the application of aromatherapy massage in patients before bedtime should be increased to enhance quality of sleep. This treatment, one of the complementary therapeutic approaches used in nursing, is a stand-alone initiative in the organization of training programs. Aromatherapy and other alternative treatment methods should be introduced in nursing education programs. Similar to other treatments for long-term use with large population groups, it is advisable to conduct comparisons and obtain an accurate interpretation of the results.

Relevance to clinical practice

The intensive care unit patients, who need sleep and rest the most in order to recover, are unfortunately the patient group that has to suffice with the least amount of sleep due to their environment and conditions. These patients spend awake an important part of the time they need to be sleep; therefore, they are not able to benefit from the therapeutic effect of the sleep adequately. After the general body care to improve the quality of sleep in ICU patients aromatherapy massage done.

Research Limitations and Generalizability

The present research was conducted at Ataturk University Research Hospital, General Surgery Yakutia. A limitation of this research was that the participants were limited to ICU patients who were extubated on the first postoperative day. Therefore, the results obtained from the study can be generalized in the study.

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Conflict of Interest

The authors declare no conflict of interest.

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