The effects of reflexology on anxiety and pain in patients after abdominal hysterectomy: A randomised controlled trial

R. Ozturk*, U. Sevil, A. Sargin, M.S. Yucebilgin

Ege University School of Nursing, 35100 Bornova/Izmir, Turkey

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ABSTRACT

Objectives: This study aimed at finding out the effects of reflexology on pain, anxiety levels after abdominal hysterectomy.

Desing & methods: The study was performed on women hospitalized in the intensive care unit and gynecology services of Ege University Hospital in İzmir after abdominal hysterectomy between September 2013 and September 2014. This study was designed and conducted as a randomized controlled trial. The study sample consisted of 63 female patients: 32 in the experimental group and 31 in the control group. The postoperative daily monitoring sheet, Spielberger State Anxiety Inventory (SAI), was employed to collect research data and "visual analog scale" to evaluate pain levels.

Results: The female patients' average age was found to be 47.23 ± 4.71. The three-day monitoring showed a significant difference between the experimental and control groups in terms of average pain levels and anxiety scores after reflexology ($p < 0.05$).

Conclusion: Foot reflexology may serve as an effective nursing intervention to increase the well-being and decrease the pain of female patients after abdominal hysterectomy, and nurses should be aware of the benefits of reflexology.

1. Introduction

Hysterectomy is described as the surgical removal of uterus and is the most frequently performed surgical intervention after cesarean section. Although the rate of hysterectomy has decreased significantly worldwide, it is still one of the most commonly performed major gynecologic surgeries and is performed mostly in the reproductive ages.[1,2,3] The most frequently observed complaints after hysterectomy are pain and fatigue, including the postoperative period.[4] Touch and massage therapy have been used in pain treatment for centuries. Massage, integrated with pharmacologic treatment, has been found to be helpful in the treatment of acute postoperative pain.[5]

Touch therapy has always been a part of nursing care and now, reflexology has become another part of it.[6] Reflexology, which is defined as a holistic healing technique, is an ancient art involving various techniques and philosophical approaches.[7,8] The pictures in the Egyptian tombs show that foot massage was used as a treatment 5000 years ago.[9] Reflexology is said to be introduced to the West only for around 90 years ago, although it has been long known in China and Egypt.[10] The emergence of zone therapy was first described by Dr. William Fitzgerald, but Eunice Ingham is considered the mother of reflexology

who mapped the body on the foot. Development of reflexology technique has developed, for example using precision reflexology that involves holding discrete reflexes on the feet, vertical reflexology and meridian focused reflexology.[11–13] Reflexology is not only a method based on stimulating the reflex points at the bottom of the foot but also similar to massage in that it manipulates soft tissue for therapeutic purposes. But also differs from massage in that it involves a more superficial contact and a deeper pressure on certain parts of the foot, and it resembles a caterpillar-like movement.[14–16] The feet represent a microcosm of the body, all organs, glands and other body parts are laid out in a similar arrangement on the feet.[17] In this way, It is believed that each part of the body is connected to a certain point at the bottom of the foot, and the pressure applied to these points will result in a relaxed and balanced body.[18] Reflexology has also been reported to help relieve stress and tension, improve blood flow and promote homeostasis.[15]

Recent research findings demonstrate reflexology as a care alternative with a wider acceptance and popularity than yesterday.[7,19] Studies also have confirmed the positive effects of reflexology, especially on postoperative pain.[9,20,21] Randomized controlled studies by Tsay et al.[14] evaluating the effects of reflexology on postoperative pain and anxiety in patients with stomach cancer and hepatocellular

carcinoma demonstrated that the patients in the intervention group felt less pain and anxiety.[9] An experimental research investigated the effects of hand reflexology on the levels of pain in postoperative abdominal surgery patients. The result of study, the mean pain score in post abdominal surgery patients after receiving true hand reflexology was significantly lower than after receiving mimic hand reflexology.[21] Reflexology also has psychological benefits such as relaxation and improving the sense of well-being.[6] Nurses, who are effective on pain qualified control after surgery, should also provide non-pharmacological pain relief to patients. Reflexology is a simple noninvasive method which has no complications and can be regarded as a part of nursing care in the critical care units.[22] The present study aimed to determine the effects of foot reflexology on the postoperative pain and anxiety levels of patients who underwent abdominal hysterectomy; thereby contributing to the existing non-pharmacologic pain relief interventions used by nurses and providing a holistic qualified nurse care.

The research questions were as follows: − What are the effects of foot reflexology on pain and anxiety in patients who underwent abdominal hysterectomy as compared with a control group? − Is there any difference pain control interventions (patient-controlled analgesia treatment) between experimental and control groups after abdominal hysterectomy?

2. Methods

2.1. Design

This randomized controlled trial study aimed at exploring the effects of reflexology practice on pain, anxiety levels of the patients after abdominal hysterectomy. The study was conducted with the female patients treated in the intensive care units and gynecology services at Gynecology & Obstetrics Department of Ege University Hospital in İzmir after abdominal hysterectomy between September 2013 and September 2014.

Formal enrolment into the research was based on the following inclusion criteria: According to Rush-Medicus Patient Classification Criteria; independent patients or low-level dependent patients and Ramsey sedation score of the patient groups and those who volunteered to participate, have the literacy of reading and writing at least, undergone abdominal hysterectomy operation, reported post-operation pain of 3 or above according to Visual Analog Scale (The pain VAS is a unidimensional measure of pain intensity which has been widely used in diverse adult populations)[23], had not developed any complications at the early term post-operation were included in research. All groups consisted of benign hysterectomy patients whose operations was performed through general anesthesia. Exclusion criteria; who were oncology patients, developed many complications at the early term post-operation (severe bleeding, nausea vomiting, etc.), were not stable at post-operative vital signs (hypertension, tachycardia, hyperthermia, etc.), had history of chronic pain (like arthritis) and psychological problems. Exclusion criteria for the application group; who had disease on foot skin, local infection (apse etc.), open lesion/wound, scar tissue, oedema, hematoma, thrombophilebitis, deep venous thrombosis, lymphangitis, coagulation disorder, varicose veins, hepatitis, inflammatory and degenerative joint diseases, peripheral neuropathy, toe deformities, fracture, dislocation, muscle fiber, tendon or fascia injuries.

2.2. Sample

The study is a randomized controlled study. In this randomized controlled trial, 63 patients were randomized who met the inclusion criteria appropriately. Participants were randomized using a computerprogram to receive either experimental or control groups. The study sample consisted of 63 patients: 32 of the patients were in the experimental group and 31 of them were in the control group (see Fig. 1).

The study sample size was calculated using the results of the pre-

intervention. According to the results from the pre-intervention, a significant difference was found in pain and anxiety levels before and after reflexology on the pre-intervention analyses performed by a statistics expert on the postoperative first, second and third days. The power analysis that was calculated by using Gpower 3.1.3 program confirmed that a power of higher than 80%, an effect size of 0.55, $\alpha = 0.05$, $\beta = 0.20$ and 2-sided statistical tests should be achieved with 56 patients in experimental and control groups for the statistical significance of the result.

2.3. Measures

Data were collected using a patient identification form, a postoperative daily monitoring form and the Spielberger's State-Trait Anxiety Inventory (SAI). Visual Analog Scale (VAS) was used to evaluate pain.

2.4. State anxiety inventory

STAI is a self-evaluation questionnaire that includes short expressions. This scale was initially developed to inspect anxiety in healthy adults and was then approved by subsequent trials for upper secondary school students and individuals with psychiatric and physical disorders. Spielberger et al. tested the reliability of the original form in three dimensions. The scale was adapted and standardized into Turkish by Oner and Le Compte in 1974–1977. In State Anxiety Inventory (SAI), individuals need to define how they feel at a specific moment or under certain circumstances and express their feelings considering the current situation. For this reason, the "State Anxiety Inventory" a part of STAI was used to evaluate the anxiety of the patient at that time in our study. Feelings or behaviors expressed in SAI items were provided with options of "1 = none", "2 = a little," "3 = pretty much," and "4 = completely," according to the severity of the experience. The highest and lowest were 80 and 20, respectively. The higher the total anxiety score is, the more the anxiety level of the individual is.[24,25]

2.5. Visual analog scale (VAS)

VAS was used to evaluate pain levels. It is a 10-cm horizontal or vertical line, ranging from "No Pain" to "Intolerable Pain." The patients were asked to mark the number that reflected their pain severity, where '0′ indicated the absence of pain and '10′ indicated the presence of very severe pain. The vertical line is assumed to be easier to understand in general.[16,27] The Cronbach's α internal consistency coefficient was found to be 0.85 for the pain subscale.

2.6. Clinical interventions

The written consent of the female patients was obtained after the researcher informed them about the procedures on the day before the operation and patient identification form was completed for each patient volunteered to participate. All patients were informed on the use of patient-controlled analgesia (PCA) device and VAS during the preoperative visits.

When each participant was informed about the requirements of the study and agreed to attend by signing a consent form, the participants were allocated into the experimental and control groups. After having their written consent, potential participants were pair-matched, then randomly assigned one of two women from a matched pair to the experimental group or the control group. Individuals in experimental and control groups were taken in different time in order to prevent interaction among them since they will share the same room. A group was not selected on one day belonging to the other group.

In the intensive care unit, the patients were administered, and as a standard, analgesia intravenous morphine infusion via the PCA device. Therefore, PCA was standardized for a bolus dose of 0.02 mg/kg after a