

Investigating the effect of rose essential oil in patients with primary dysmenorrhea



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ABSTRACT

Objective: This study aimed to evaluate the effects of rose essential oil on primary dysmenorrhea.

Methods: One hundred patients were randomly divided into two groups; Group D received diclofenac sodium (75 mg/im) and Group A administered diclofenac sodium with aromatherapy (2% rose essential oil). The visual analog scale (VAS) scores in all subjects at baseline, 10th min, and 30th min were recorded.

Results: When the two groups were compared before and after the treatment, there were significant decreases in VAS values at the 10 min and 30 min compared to baseline values in both groups ($p < 0.001$). However, the 30th min mean VAS value in Group D was higher than in Group A ($p = 0.019$).

Conclusion: The present study suggests that aromatherapy with rose essential oil, which is a non-pharmacologic treatment method, as an adjuvant to conventional treatment methods may be beneficial for pain relief in individuals with primary dysmenorrhea.

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1. Introduction

Dysmenorrhea, which is described as painful menstruation with undesired symptoms such as abdominal cramps, back pain, nausea, vomiting, and fatigue [1], is one of the most common gynecological problems of women. The prevalence is about 60% in adolescents with a wide variation, between 28% and 78%, reported around the world [2,3]. Environmental and psychological factors, including low body mass index, smoking, early menarche, prolonged or aberrant menstrual flow, and infections can reveal a direct or indirect association with dysmenorrhea [4].

Furthermore, several studies showed an evident negative effect of dysmenorrhea on an individual's psychological condition and quality of life, resulting in absence from classes and work by the female community [5,6]. Dysmenorrhea is characterized by cramping abdominal pain just before or at the beginning of menses.

Despite the knowledge of common mechanism that prostaglandins, leukotrienes, and enkephalins release to lead to uterine muscle contraction before the onset of menstruation, it remains unclear and an increasing number of studies have sought to uncover the hidden pathways of dysmenorrhea [7,8].

Various techniques have been widely used to cope with menstrual pain, including non-steroidal anti-inflammatory drugs (NSAID), oral contraceptives, and analgesics, which showed a failure rate of 25% in the management of pain. Long-term use of these drugs involves several side effects, such as nausea, dyspepsia, peptic ulcer, and diarrhea [8]. The difficulties in the management of dysmenorrhea may lead to an increase in the risk of pain syndromes. In addition, recent studies demonstrated that complementary and alternative medicine, including acupressure, aromatherapy, behavioral intervention, nutritional support, local warming, and transcutaneous electrical nerve stimulation, may be effective for pain relief [8–11]. In this context, essential oils obtained from herbal plants have become popular as a complementary and alternative medicine in the management of pain [12]. Rose essential oil, which is extracted from *Rosa damascena*, is one of

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these substances. It is widely used in the perfumery and cosmetics industry as a base component, as well as in the food industry as a flavor additive. Turkey, Bulgaria, Iran, and India are the main manufacturers of rose essential oil [13]. It is believed that rose essential oil has a relaxant effect, thus leading to its usage for anxiety, depression, and stress-related conditions worldwide [14]. In addition, an experimental study in rats showed that intraperitoneal injection of rose essential oil may cause a delay in the development of seizure stages [15]. Moreover, recent studies have reported anti-cancer, anti-aging, laxative/purgative, hypolipidemic, antidiabetic, antibacterial, and antimicrobial effects of rose essential oil [16–22].

There are numerous studies examining the effect of aromatherapy on primary dysmenorrhea [23–30]; however, in a large number of these studies, aromatherapeutic oils were applied to the abdominal region in the form of massage [25–30]. In addition to local analgesic and antispasmodic effects, there are also systemic effects by absorption from the blood vessels under the skin [27,29] following the application of aromatic oils with massage. It is difficult to predict whether systemic or local delivery of an aromatic compound through massage is more effective. Apart from studying the local effects of aromatic oils, there is a need for studies focusing on the administration of these oils by inhalation to establish systemic only effects. After reviewing the literature, only two studies were found regarding the administration of aromatic oils by inhalation to patients with primary dysmenorrhea. In both of these studies, lavender oil was used and it was shown that lavender inhalation was an effective way to relieve symptoms of dysmenorrhea [23,24]. However, there are no studies investigating the effect of inhalation of rose essential oil in reducing the symptoms of dysmenorrhea in the literature. Therefore, in this study, we aimed to investigate the effects of rose essential oil (*R. damascene*) administered by inhalation on patients with primary dysmenorrhea admitted to the emergency service.

2. Materials and methods

2.1. Subjects

After obtaining approval from the Clinical Research Ethics Committee (14-KAEK-215), this randomized clinical trial study included a total of 100 patients whose ages ranged between 19 and

30 years and who were admitted to the emergency unit and diagnosed as primary dysmenorrhea (Fig. 1). The patients underwent medical examinations and interviews and completed a health questionnaire. The selection criteria were: (1) pain of menstrual cramps greater than 5 points on the 10 point visual analog scale (VAS); (2) no systemic disease (e.g. diabetes mellitus, hypertension, and cardiovascular or any endocrine disorders) or disease of the genital organs; (3) no use of contraceptives to control the menstrual cycle; and (4) no anosmia. The following parameters were the exclusion criteria: (1) presence of a history of NSAID allergy or NSAID usage in the last 24 h; (2) a history of hematologic disease; (3) presence of a peptic ulcer or oral mucosal lesion; (4) administration of anti-coagulant therapy; (5) disruption in kidney functions; and (6) patients who were pregnant or breast feeding.

2.2. Drug administration and inhalation of essential oil

Subjects were randomly (sealed-envelope technique) divided into two groups: patients who received diclofenac sodium (Diclo-mec 75 mg Ampule, Abdi Ibrahim, Istanbul, Turkey) 75 mg intramuscular (IM) were defined as Group D and patients who were administered diclofenac sodium 75 mg IM with aromatherapy (2% rose essential oil) were defined as Group A. Rose essential oil and placebo application were performed in separate rooms that had a different ventilation system from each other. A maximum of three patients were included in the aromatherapy group daily and there was a period of at least one hour between patients. Group A received rose essential oil (Gulbirlilik, Isparta, Turkey) via an electronic vaporizer (Robert Tisserand Ltd., West Sussex, United Kingdom) which was placed at least one meter above the patient and set to continuously spray every 10 min. Group D received saline by the same technique. The patients were released during the implementation of the placebo and aromatherapy. The VAS, respiratory rates (RR), systolic arterial blood pressure (SBP), diastolic arterial blood pressure (DBP), mean arterial blood pressures (MAP), and heart rates (HR) in all subjects at baseline (pretreatment), 10 min posttreatment, and 30 min posttreatment were recorded on a standardized data sheet.

2.3. Measurement of pain

In all groups, the pain severity of the patients was evaluated

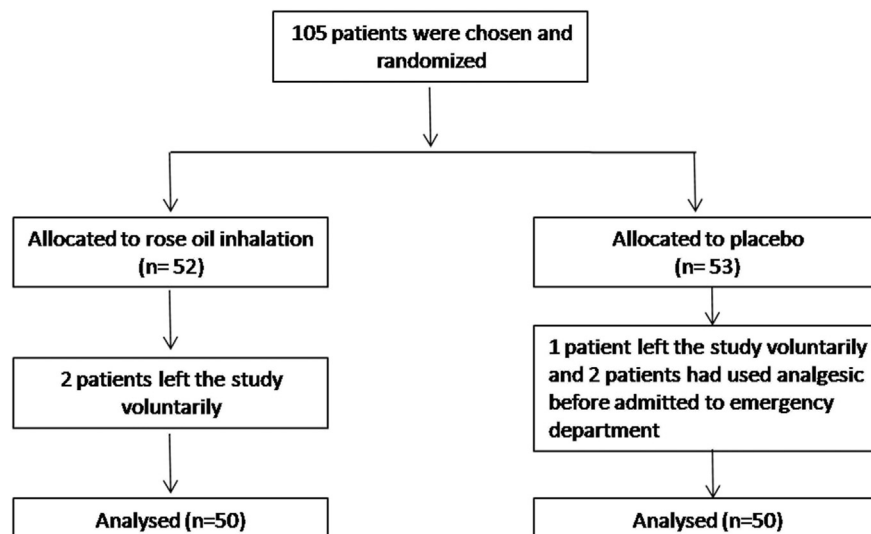


Fig. 1. The study flowchart.

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