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Use of Sesame Oil in Pain Management: Literature Review

Muzeyyen Ataseven[a,*], Nuray Sahin Orak[b]

[a] Medipol University Faculty of Health Sciences Department of Nursing, Istanbul, Türkiye

[b] Arel University Faculty of Health Sciences Department of Nursing, Istanbul, Türkiye

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[a] https://orcid.org/0000-0003-0370-0937

[b] https://orcid.org/0000-0002-9356-2971

*Correspondence: Muzeyyen Ataseven

Medipol University Faculty of Health Sciences Department of Nursing, Istanbul, Türkiye

e-mail: muzeyyenataseven@hotmail.com

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ABSTRACT

Despite the developments in the health field, pain is still seen as a universal problem worldwide. Effective pain management is essential in shortening the recovery period of the individual, reducing treatment costs, preventing the formation of chronic pain, and increasing the quality of life. In current guidelines, it is mentioned that non-pharmacological methods can be used in addition to pharmacological treatment in pain management. Today, it is known that aromatherapy has an important place among complementary and holistic therapy methods. It is stated that sesame oil, which is one of the aromatherapy oils, has essential effects such as antioxidant, anti-inflammatory and antibacterial. However, it has been emphasized that the evidence on the clinical effectiveness of non-pharmacological interventions in pain management is insufficient in current pain guidelines and that further studies using a combination of pharmacological and non-pharmacological methods are needed. In this context, there is a need to increase studies that can provide evidence to evaluate the applicability of sesame oil, which is one of the aromatherapy oils, in addition to pharmacological treatment in interventions for pain management.

Keywords: Pain, sesame oil, aromatherapy, non-pharmacologic technic

1. INTRODUCTION

Pain is defined by the International Working Group on Pain (IASP) as "an unpleasant emotional state related to the past experiences of the individual, which may or not be due to tissue damage originating from a particular part of the body" and is seen as a universal problem throughout the World (1). In neurophysiology, pain is called "nociception". Nociception is defined as the transmission of tissue damage in any part of the body to the Central Nervous System (CNS) via nociceptors, taking all precautions and activating this stimulus by going through specific processes (2,3).

In addition, pain is a multidimensional, complex, and protective mechanism. The way of perception of an individual is affected by psychological, cultural, religious, environmental, neurophysiological, and biochemical factors (2). Despite the developments in the field of health, pain is one of the situations that patients frequently experience due to many factors such as traumas, accidents, surgical interventions, and acute and chronic diseases (4). The pain

experienced by individuals can be of chronic or acute type (5).

In the diagnosis of pain, different classifications are made by considering different parameters, in this context, pain is defined as acute or chronic when the time of onset of pain is taken into account (5). Chronic pain is defined as a complex condition that changes the person's quality of life and in which psychological factors play a role. Acute pain, on the other hand, is generally expressed as a situation in which the severity of pain varies with the process of the situation that starts suddenly and triggers the formation of pain. If the experienced pain lasts longer than 3 months, the type of pain is considered chronic or permanent, and when acute pain management cannot be performed effectively, it can become chronic pain (6).

When the studies on the prevalence of pain in the world are examined; In a study conducted by the World Health Organization in Asia, Europe, Africa and America, the frequency of chronic pain was 21.5%, post-operative pain associated with surgical trauma, which falls under the acute pain category, is seen in 80% of patients despite the improvements in pain management is reported as a condition (7,8).

Pain Management

Pain management aims to relieve pain as best as possible, with no or minimal side effects. The general approach to pain treatment is the use of pharmacological methods, but many complications may arise in the use of pharmacological agents. In current pain guidelines, "multimodal analgesia" is recommended for pain management with a high level of evidence and recommendation. Multimodal analgesia is the simultaneous use of different pain control mechanisms by utilizing the synergistic effect of drugs used together to reduce the opioid dose, increase the analgesic effect, and minimize the risks of side effects in pain control, thus ensuring effective pain management (7,9). For this reason, the guidelines state that non-pharmacological methods can be used in addition to pharmacological treatment to assist in treatment (10,11).

Local anesthetic, nonsteroidal anti-inflammatory, opioid, and paracetamol drugs as well as adjuvant drugs (anxiolytic, neuroleptic, anticonvulsant, and antidepressant) are included in multimodal analgesia (7,8,12). Non-pharmacological methods include transcutaneous electrical nerve stimulation (TENS), executive (cognitive) behavior therapy, estimation of its effect, hot-cold applications, biofeedback, therapeutic touch, cryotherapy, acupuncture, aromatherapy, and massage (7, 8,13).

Aromatherapy

Aromatherapy is a special branch of treatment with medicinal plants and is based on the therapeutic use of essential oils obtained from various parts of plants (leaf, flower, bark, fruit, root) (14). In addition, the importance of aromatic plants in maintaining health has been known since ancient times.

Today, it is seen that aromatherapy has an important place among complementary and holistic therapy methods. Approximately 15% of around 250,000 plant species in the world are evaluated as phytochemicals (15). To get the right effect from aromatherapy, the application must be done at the right time and in the right way. Aromatic oils are applied in four basic ways: topical, internal (by mouthwash, by vaginal or anal suppository), oral, and inhalation. The applied oils show their effects on all body systems by participating in the nervous system or blood circulation. It is thought that our body can detect and remember about 10,000 odors (16).

Aromatherapy oils are obtained by distillation, extraction, and mechanical (cold-pressed) methods (17). Essential oils are mostly obtained by distillation. Essential oils obtained by distillation and cold pressing show different physical and chemical properties. Distillation is not used in the process of obtaining fixed oils. Instead, cold pressing or extraction methods are preferred (18).

Sesame Oil And Pain

It is obtained from the plant species Sesamum indicum L., an annual woody plant belonging to the Pedaliaceae family. Sesame oil is known as a golden yellow oil rich in vitamins A and E and protein (17).

Sesame oil is obtained by applying the cold pressing method to the seeds of the plant and it is in the semi -drying oil class (17, 18).

When the literature is examined using Pubmed and Google Scholar databases, Sesame oil has a long history of use in traditional medicine. It is found that sesame oil, which is included in the traditional medicine practices of Asian countries and many countries, is used for therapeutic purposes in many areas such as hemorrhoids, wounds, asthma, blurred vision, pain, and insufficient breastfeeding (19, 20). Studies have reported that, in addition to its antimutagenic and antipyretic effects, it can be used in different ways of use (topically or orally) with its antinociceptive properties and has analgesic effects (17, 19, 20). When we look at the studies on reducing the intensity of sesame oil on pain, it is seen that there are more animal experiments, and studies on humans are limited. Studies show that sesame oil has important effects such as antioxidant, anti-inflammatory, and antibacterial and will provide serious benefits in atherosclerosis, cancer, hypertension, diabetes, microbial infections, pain, and wound healing (20, 21, 22).

Nasiri et al. It has been reported that aromatherapy massage with sesame oil applied to the trauma area in trauma patients reduces the level of pain due to acute trauma in patients (19). Shamloo et al., in their study examining the effect of topically applied sesame oil on pain intensity and frequency of nonsteroidal anti-inflammatory drug use in trauma patients, stated that it reduced the severity of trauma -related pain and the frequency of NSAID drug use (23).

In a study by Nukezed et al on the efficacy of topically applied sesame oil in the prevention of chemotherapy-induced phlebitis, it was reported that sesame oil is effective in reducing pain and is safe for phlebitis prophylaxis (24). Moayebi et al. evaluated the effectiveness of sesame oil in the prevention of chemotherapy-induced phlebitis in children with acute lymphoblastic leukemia and reported that sesame oil was effective in reducing pain intensity (25).

Eftekdar et al. It has been reported that the group has been clinically investigated and oral administration of sesame in addition to pharmacological treatment makes a difference in preventing pain relief in patients with knee osteoarthritis (26). Asgari et al. In their study to evaluate the effect of massage with sesame oil on pain and duration of labor in primiparous patients, it was stated that sesame oil shortened the duration of labor and was effective on pain (27). Ebolfazlı et al. reported that sesame oil had analgesic and anti-inflammatory effects with topical application in a study that included the comparison of sesame and chamomile oil in patients with chronic low back pain (28). In a study in which an ointment containing sesame oil was applied and pain intensity was evaluated in burn patients, it was reported that sesame oil was effective in reducing pain intensity (29).

Animal studies are showing the analgesic properties of orally or topically applied sesame oil (30, 31, 32). It has been reported by Wan y et al. that topically applied sesame oil on diabetic rats is effective in dysesthesia pain (32). In addition, studies are reporting that oral sesame oil is effective in relieving acute pain caused by gout and joint pain associated with osteoarthritis (33, 34). Hsu et al. In his study evaluating the effectiveness of orally administered sesame oil in controlling osteoarthritis pain in rats, he reported that it could relieve early joint pain by inhibiting muscle oxidative stress (33). In the animal study conducted by Manterio et al. evaluating the effectiveness of sesame oil, they stated that sesame oil reduces pain, has properties similar to opioids, and has a better analgesic effect than NSAIDs (31).

It is stated that human studies on reducing the intensity of sesame oil on pain are limited and more studies should be conducted in this area in the future (23). Studies show that sesame oil achieves successful results in reducing the severity of pain in patients. Still, studies are limited and more studies

are needed to examine the treatment duration, application method, and dose of sesame oil (19, 23).

CONCLUSION

Results based on studies show that sesame oil, applied with different forms of use, is a complementary method with analgesic properties and a positive effect on reducing the level of pain in patients. It is thought that sesame oil, which is used with pharmacological methods, may be effective in relieving pain or reducing its severity, reducing the rate of use of analgesics so that analgesic side effects will be less experienced, and the patient's quality of life will be positively affected. In current pain guidelines, it has been emphasized that the evidence on the clinical effectiveness of non-pharmacological interventions in pain management is insufficient and there is a need for further studies using a combination of pharmacological and non-pharmacological methods. For this reason, human studies with strong methodology and a high level of evidence regarding complementary and integrated health practices should be conducted, these practices whose effectiveness in symptom management is determined should be taught to nurses and physicians, and patients should be educated to participate in the management of their symptoms.

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