

The Use of Aromatherapy for Postoperative Pain Management: A Systematic Review of Randomized Controlled Trials

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Purpose: Aromatherapy (AT) is a complementary therapy recently used in the perianesthetic period. However, the scientific data on its effectiveness are limited. The aim of this systematic review is to present and analyze the results of all randomized controlled trials (RCTs) that studied the effectiveness of AT as a complementary treatment for postoperative pain.

Design: PubMed and Cochrane Library databases were searched from 1965 to December 2015. Nine randomized controlled trials that met the inclusion criteria were eventually included.

Methods: The studies included a total of 644 patients, who underwent various types of surgeries. The modified Jadad scale with eight items was used for the methodological evaluation of the RCTs.

Findings: Five RCTs support AT, which can alleviate postoperative pain, whereas four found no statistically significant differences between groups.

Conclusions: Although AT is presented as an inexpensive complementary treatment with a low rate of adverse effects that improves patient satisfaction, it cannot be determined that there is sufficient evidence to conclude its effectiveness as a nonpharmacologic approach to the reduction of postoperative pain intensity.

Keywords: aromatherapy, postoperative pain, essential oil, perioperative care, systematic review.

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APPROPRIATE MANAGEMENT OF POSTOPERATIVE PAIN is a fundamental right of the patient and one of the most important components of adequate postoperative care.¹ A notable emphasis is given to the effects of undertreated postoperative pain, which vary from patient dissatisfaction and minor complications to

prolonged recovery time, poor quality of life, and postoperative morbidity.² The mainstay of postoperative pain management remains the administration of standard analgesics and analgesia techniques that are considered safe and effective, although they can induce some adverse effects.³

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Conflict of Interest: None to report.

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Recently, patients seem to be attracted to complementary and alternative medicine as different ways to address their health issues, including important and complicated ones such as those related to surgery. Among nonconventional treatments used in the perianesthetic period, there is a rise in interest in aromatherapy (AT) over the past few years.⁴

A definition of AT is the use of concentrated essential oils extracted from herbs, flowers, and other plant parts to treat various diseases.⁵ AT is a complementary therapy, meaning that it is not an alternative to a conventional therapy, because it cannot stand on its own. Essential oils can only be used auxiliary (complementary) to another therapy and should not be considered as primary care.⁴ This demarcation is important not only for the proper use of AT, but also for the effective planning of relative studies.

Essential oils are volatile liquids extracted from plants by steam distillation or mechanical expression. They are made up of a large array of chemical components such as terpenes, esters, alcohols, aldehydes, ketones, phenols, and oxides. Each type of oil contains different amounts of these compounds, leading to its therapeutic characteristics and specific fragrance. The most common methods of applying AT are inhalation (direct, eg, through an oxygen mask or individual inhaler and indirect, eg, via a room diffuser) and massage (where the essential oil is diluted in carrier oil). Other applications include mixing essential oils in bath salts and lotions or applying them to dresses. In some countries such as France and Germany, essential oils are also given orally; however, this use is currently limited.⁶

AT is reported to be useful for a vast array of symptoms and conditions.⁷ Published articles have described its use for a variety of conditions such as mood, anxiety, and general sense of well-being,^{8,9} sedation and arousal,^{10,11} startle reflex and reaction time,^{12,13} labor,^{14,15} and coping with smoking withdrawal symptoms.^{16,17} It has also been used for patients with chronic renal failure,¹⁸ psychiatric and neurologic disorders,^{19,20} and cancer.²¹ Essential oils have cytotoxic activity owing to the presence of

phenols, aldehydes, and alcohols. Because of their antibacterial and antifungal properties, they have been used for wound care and disinfection.²²

The studies referring to AT's clinical use in pain include various conditions such as childbirth,²³ headache,²⁴ cancer pain,²⁵ and postoperative pain.^{26,27} Essential oils have been used lately in the perianesthetic period, primarily for preoperative anxiety²⁸ and postoperative nausea and vomiting.²⁹

Given the patients' interest in complementary therapies and the pleasantness and inexpensiveness of AT, along with a relatively low incidence of complications,³⁰ health practitioners seem to be more and more interested in including such treatments in perianesthetic care. On the other hand, there is a demand among the scientific community for evidence-based guidelines to incorporate nonconventional treatments in perianesthetic care.

The aim of this systematic review was to outline the effects of AT on postoperative pain, with a focus on the scientific evidence provided by randomized controlled trials (RCTs).

Methods

Search Strategy

PubMed and Cochrane Library databases were searched from their inception to December 2015. The databases were selected because of their high reliability and abundance of publications/citations. The search terms were "aromatherapy postoperative pain," "postoperative pain essential oils," and "aromatherapy surgery." A search was also conducted using the MeSH terms "aromatherapy perioperative care" and "aromatherapy anesthesia," using a filter for RCTs. The search was conducted by two independent investigators, using the same search words and MeSH terms. All duplicate references were identified and removed. The reviewers assessed all potentially relevant articles independently. Disagreements regarding study selection were resolved by discussion, with strict adherence to the inclusion criteria.

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