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Aromatherapy for Postoperative Nausea in Acute Care-Evidence and Future Opportunities

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Postoperative nausea (PON) is a common event associated with surgery and anesthesia.[1] Despite the availability of 5-HT_3 receptor antagonists and other agents, nausea and vomiting continue to be a difficult patient problem.[1,2] Postoperative nausea is associated with discomfort, fatigue, and dehydration. Cost, patient dissatisfaction, and risks of aspiration provide ample evidence to explore additional ways to reduce PON burden.[3] Nearly one-third of all persons undergoing surgery experience PON, and current medication interventions, although usually effective, often have sedation as adverse effect that can delay recovery, transfer, or discharge.[4]

Significant predictors for PON include female gender, history of motion sickness or PON, surgery procedure longer than 60 minutes, receiving volatile gas anesthesia, and gastrointestinal or gynecology surgery.[1] Lack of consensus regarding best practices for antiemetic pharmacological agents opens a path to examine possible benefits of essential oil (EO) to reduce PON. Limited evidence suggests that noninvasive aromatherapy may provide relief at a low cost.[1]

Aromatherapy is defined as the therapeutic use of an EO; a complementary therapy. Evidence supporting aromatherapy for PON is weak related to limited numbers of trials with methodological flaws. While well-designed trials are needed to validate the benefits of EO for relief of PON, limited evidence suggests that inhaled vapor of peppermint or ginger EO may reduce the frequency and severity of nausea and vomiting and decrease antiemetic medication requirements. In addition, aromatherapy appears to be linked to increased patient satisfaction.[2]

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Aromatherapy provides a potential alternative therapy to manage nausea without medication adverse effects or sedation. Peppermint spirits (peppermint with an aromatic ethyl alcohol base) may be a useful adjunct. The aroma binds to receptors in the nasal epithelium, and neurochemical reactions are transmitted to the olfactory bulb, limbic system, and thalamus stimulating release of neurochemicals such as endorphins. Potential adverse effects can include allergies and mucous membrane irritation, and persons with lung conditions or pregnancy should avoid inhalation of oils.[5,6]

Peppermint has ancient roots in European medicinal arts. A hybrid of spearmint and water mint (*Mentha aquatica*), EO is brought forth by steam distillation of fresh aerial parts of the flowering plant. Peppermint oil has antiemetic and antispasmodic effects on the gastric lining and colon, which may be related to inhibition of muscular contractions induced by serotonin and substance P4.[4]

Inhaled as well as diluted topical application of EOs has a generally low toxicity profile and is not subject to approval by the Food and Drug Administration unless there is a specific claim for treatment of diseases. Essential oils can be provided via indirect inhalation using a room diffuser or drops of oil placed near the patient (eg, on a tissue or gauze).[6]

In a randomized trial of 303 subjects reporting nausea in an ambulatory surgical center, inhaled EO of ginger, or a blend of ginger, spearmint, peppermint, and cardamom EOs delivered via a gauze pad significantly reduced nausea ($P = .002$ and $P < .001$, respectively) compared with a saline placebo. Furthermore, requests for antiemetic medications significantly declined with ginger ($P = .002$) or the EO blend ($P < .001$) compared with placebo.[1]

In another study examining the effects of peppermint on nausea, 35 women post–cesarean delivery were randomly assigned to 3 groups; 1 group was provided peppermint spirits, the control group inhaled an inert placebo, and the standard-therapy group received standard medication

therapies such as ondansetron or promethazine. Baseline measures for nausea for all 3 groups were similar. Reported nausea for the peppermint-spirits group was significantly lower than that in the placebo and standard-intervention groups at 2 and 5 minutes after the initial intervention.[5]

THE FUTURE

A great resource for the clinical nurse specialist is the PDQ (Physician Data Query) of the National Cancer Institute (NCI). This Web site provides comprehensive cancer information through independent reviews of the literature and not representative of policy of the NCI or the National Institutes of Health. Here, the clinical nurse specialist can find current peer-reviewed, evidence-based information about the use of aromatherapy and EOs in the treatment of people with cancer. Rather than provide guidelines or formal recommendations, the Web site is a valuable care resource to inform and assist clinicians. Information is reviewed and updated as necessary by the PDQ Integrative, Alternative, and Complementary Therapies Editorial Board, which is independent of the NCI.[6]

Additional valuable resources include the National Association for Holistic Aromatherapy (www.naha.org) and the Alliance of International Aromatherapists (www.alliance-aromatherapists.org). These Web sites provide a wealth of information regarding resources, education, and standards for aromatherapy.

Further research is needed to determine therapeutic efficacy and safe use not unlike guidelines for the provision of medication therapy.[4] Further research should explore the effects of peppermint and other EOs on PON and whether benefits are sustained with continued use. Larger studies with standardized antiemetic medication treatments stratified by at-risk groups would provide significant evidence for aromatherapy best practices. Finally, the prophylactic use of aromatherapy before surgery should be explored.[1]

A word of caution regarding future research of EO use in practice: The biomedical research model of randomized, double-blind, controlled clinical trials may have serious limitations when studying nondrug interventions such as aromatherapy.[7] Perhaps the research paradigm for aromatherapy should focus on EO as a complementary therapy rather than an alternative therapy. This would stop trying to fit EO use within a medical model.[5]

This shift would also help healthcare systems that are increasingly looking to integrate aromatherapy (EOs) as a safe, low-cost, and nonpharmacologic option for patient care to reduce pain, nausea, and anxiety and to improve sleep.[8] Lack of evidence and bias regarding EO use are significant barriers to EO use in the hospital environment.[5]

A recent retrospective effectiveness study examined the use of a nurse-delivered aromatherapy interventions on pain, nausea, and anxiety in acute hospital settings across a large health system. Primary outcome measures were change in patient-reported pain, anxiety, and nausea before and after receiving aromatherapy using a numeric rating scale (0–10). Data were obtained from the electronic health record for 10 Allina Health hospitals located in Minnesota and western Wisconsin.[9] There were 10 262 hospital admissions during the study timeframe in which nurse-delivered aromatherapy was provided as part of patient care. More than 75% of all aromatherapy sessions were administered via inhalation. Essential oils generally resulted in clinical benefits based on intended use, with ancillary benefits for other symptoms. Poststudy recommendations included exploring the use of additional EOs, modes of administration, and different patient populations.[9]

Education and certification in aromatherapy are available at a limited number of schools in the United States and the United Kingdom. However, lack of professional standardization and licensure has resulted in variance in the use of EO in practice and research.[6] With future research and applications, these gaps will be addressed with knowledge for best practices.

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