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Aromatherapy: Art or Science? Highlights of Aromatherapy in Medicine Today

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LEARNING OBJECTIVES

1. Discuss the history of aromatherapy and the theory of application.
2. Outline the process of producing, categorizing, purchasing, and administering essential oils for aromatherapy.
3. Identify the potential areas of controversy and adverse effects associated with aromatherapy.
4. Describe the current literature for the use of lavender, rosemary, neroli, and other aromatherapy agents for therapy in cognition, dementia,

cancer, dermatologic conditions, and pain.

ABSTRACT: Aromatherapy is categorized as a form of complementary and alternative medicine (CAM), and has been steadily gaining popularity in today's society. Aromatherapy has roots that can be traced back at least 5,000 years to ancient China, India, Persia, and Egypt. The word aromatherapy is used to describe the use of essential oils for aromatic inhalation, compresses, and topical application through massage. Aromatherapy should not be confused with aromatology, which is the oral use of essential oils in addition to the application of neat (undiluted) oil through the skin. Aromatic oils are categorized by differences in how long the scent lingers. Those planning self-care with aromatherapy need to use caution when using oils owing to possible adverse reactions. The consumer can easily purchase essential oils on many Internet sites and in stores. Some colleges and universities have academic training programs for those interested in pursuing a career in aromatherapy. Trials using aromatherapy have investigated several therapeutic uses. Studies have attempted to quantify the comfort and symptom relief of blended oil aromatherapy in cancer patients. Other areas of investigation include the effect on central and autonomic nervous systems, such as in the case of neroli massage after cardiac surgery. Rosemary aromatherapy has been studied for its potential to stimulate attention and improve

cognition. Dermatologic conditions, insomnia, and pain control have also been studied. Because of increasing popularity and its broad range of use, pharmacists may be asked questions on aromatherapy and should be aware of the potential hazards and lack of demonstrated efficacy.

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AROMATHERAPY: ART OR SCIENCE? HIGHLIGHTS OF AROMATHERAPY IN MEDICINE TODAY

Introduction

Aromatherapy falls into the category of complementary and alternative medicine (CAM) that may be defined as a vast group of practices and products that are not considered part of conventional medicine. Some other examples of CAM are homeopathic medicine, acupuncture, and therapeutic touch. In 1997, the number of visits to alternative care practitioners exceeded the visits to primary care physicians in the United States (U.S.), and in 2000, it was estimated that at least 50% of the U.S. population used some form of alternative therapy.¹ Many view aromatherapy as only a complement to a

more established medical therapy. Traditional health care practitioners especially hold this view. This view is understandable considering a physician can be charged with malpractice if a patient is referred to an alternative practitioner when the condition has a cure with conventional means.² It may be claimed that benefits are derived mostly from the placebo effect or from massage, but some regard aromatherapy more for its medicinal qualities. Regardless, popularity is definitely gaining. The increased use of CAM may be a result of a combination of several factors. Over the past decade, access to the World Wide Web has increased public awareness. The Web, combined with commercial advertising promoting disease prevention and healing by unconventional means, have created a strong appetite for ancient philosophies.¹

Aromatherapy's roots can be traced back at least 5000 years to ancient China, India, Persia and Egypt, where the ancients used the oils for massage, medicine, religion, food preparation and preservation, and embalming.³ The term aromatherapy was not used until the 1920s, when a French cosmetic chemist, Gattefosse, who worked in a perfumery, noticed the antiseptic qualities of many oils. Historically, oils were administered by inhalation, as washes for the mouth and throat, as compresses, and taken internally. The internal administration of oils more closely describes "aromatology," which uses oils internally but more commonly uses undiluted oil, termed neat oil, applied through the skin. Aromatology uses plant extract to stimulate circulation, lymph flow, and detoxification and is more extensively involved compared with aromatherapy.⁴ Oils are selected by the effect they exert on a particular organ, and may be used undiluted and delivered per rectum or vagina.⁵ There is only one college

offering training in aromatology.⁶ It consists of an intensive 2-year program designed for those who are already licensed as therapists or in medicine. The term “aromatherapy” applies to the use of essential oils for aromatic inhalation and topical application that can be through massage and should not be confused with the term “aromatology.”⁶

Aromatherapy Basics

Oils from the plants are extracted from flowers, twigs, leaves, bark, or from a fruit’s rind. For example, sandalwood oils are from the wood, rose oils from the flowers, and some basil oils from the leaves.⁷ Several methods of oils can be extracted from the plant material. The most common method is steam distillation. Some others include hydrodiffusion, mechanical expression or pressing, enfleurage (using fixed oil or fats to absorb aromatic volatile oils), and solvent extraction.⁸ Whatever the method, the yield is generally small with sometimes as much as 500 pounds to a ton of plant material consumed to produce a quart of oil.³ The oils are properly termed “essential oils.” They are very concentrated and are generally diluted to a concentration not greater than 5% volume in volume (v/v) prior to use.⁵ As one can guess, essential oils can be expensive. Some oils may cost around 30 dollars for one-half ounce; however, a couple drops will go a long way. Less expensive oils are available, though often they are not the best of quality. Some suppliers may not verify the purity of their oils, but questions are almost always met with a positive assurance of quality.⁹ Some signs of adulteration are when oils all have the same price or that a label does not indicate that the product is an “essential oil.”⁹

There are several web sites and books available that have information on where to

purchase, how to purchase, and the proper storage of essential oils. At the end of this article, names of books and websites are provided that may be useful. Information can also be found on each oil’s use and for homemade formulas, with suggestions of how to mix them together based on their characteristics. Many people find it enjoyable to mix the essential oils in creams and lotions creating their own personal scents. It is important for those planning self-use to be aware that chemical constituents of essential oils can be skin irritants especially if used in concentrations exceeding 5%. Sometimes irritation can occur even from just overusing the same oil.⁹ Ketones and phenolic ethers may be present in some oils, and can be damaging causing neurotoxicity and hepatotoxicity when used incorrectly and over a long time be attributable to systemic absorption.⁵ Clove and cinnamon have been known to cause a dermatitis-type reaction in about 5% of the population.⁹ Tea tree oil or melaleuca oil has been known to cause contact dermatitis in some people.^{10,11} In addition, some scents that are relaxing can cause stimulation if used in higher concentrations, such as lavender.⁵ For pregnant women, babies and children, those who are sick, and also the elderly, essential oils should probably not be used because of lack of data displaying safety.

Aromatic oils fall into “note” categories of an aromatic orchestra. These notes carry degrees of volatility rates or differences in the time the scent lasts.⁸ There are top notes whose scents are light and sweet such as citrus oils, basil, sage, and eucalyptus, to name a few.⁷ Top notes generally linger for 3 to 24 hours.⁷ There are others called middle notes that provide the character of the blend and last 2 to 3 days.^{8,7} Some middle notes are chamomile, lavender, and rosemary.⁷ Lastly, there are the base or

bottom notes. These scents are deep and strong and linger the longest, up to a week.⁷ Common base notes are myrrh, patchouli, and sandalwood.⁷

When essential oils are used for massage, they are diluted with “carrier oils” such as almond, apricot kernel, grapeseed, avocado, wheat germ, evening primrose, and coconut oils.^{7,12} Almond oil is absorbed easily from the skin and is beneficial if the skin is dry. Apricot kernel oil is very light and is best for facial application.⁷ Grapeseed oil is the least expensive and is also light, which is good for people with oily skin.⁷ Avocado oil is for dry, flaking, and aging skin.¹² Wheat germ oil contains vitamin E, and may help to prevent scar tissue.¹² Evening primrose contains gammalinolenic acid, and may be useful to prevent aging.¹² Coconut oil has claims in moisturizing the scalp.¹²

Controversy Today

Current medical standards use evidence-based medicine from well-controlled, double-blind trials to guide therapy; however, this is generally lacking when it comes to aromatic therapies. One reason is the difficulty of devising a sound study design. Perhaps another is attributable to the current attitude of the scientific community and the skepticism in which CAM therapies are received. Most support for aromatherapy comes from anecdotal evidence and case reports. Many published studies do fall short for several reasons. Some do not include a control group, others do not record baseline measurements, and/or have not used qualified massage therapists.¹³ Since the definition of aromatherapy can include the use of essential oils with massage, this variable should be consistent. In addition, most studies have a small sample size. The recruitment of patients was the most challenging problem reported by Westcombe in his 2003 study that

examined the challenges in designing a randomized control trial for aromatherapy massage. Most patients were reported to be unwilling to participate in the study.¹⁴ Also, from examining the scientific literature cited in this article, a limited number of essential oils were studied, with one of the most popular being lavender, followed by chamomile.

Trials using aromatherapy have investigated several medical conditions such as patients with cancer and dementia, pain during and post labor, arthritis, skin conditions like alopecia areata and psoriasis, cognition, anxiety, and insomnia. Some additional areas of investigation but not discussed in this article are postoperative nausea, chronic obstructive lung disease, and asthma.^{15, 16} Data is even available on the use of essential oils as an ingredient in mouthwashes. Essential oils have been found to contain anti-plaque properties and to prevent gingivitis.¹⁷ The American Dental Association has endorsed essential oil use as oral-hygiene adjuncts, and they can be found in everyday products such as Listerine.¹⁷ Owing to increasing popularity and its broad range of uses, it would not be unreasonable to say that pharmacists may receive questions on aromatherapy regarding its place in medicine.

Autonomic Nervous System and Anxiety

When aromatherapy is mentioned, one may tend to think of its effects on the mind and body. Thoughts of calmness or relaxation and reduced anxiety tend to almost define the word for many people. Some essential oils such as lavender (*Lavandula* spp.) are thought to have a sedating effect. One proposed mechanism is owing to an effect on the autonomic nervous system (ANS).¹⁸ If aromatherapy affects the ANS, then it may help to reduce anxiety as well. The effect of aromatherapy on heart and respiratory rates, blood pressure, and blood

flow has been investigated mainly with lavender oil, which is known for its relaxing and calming qualities. Trials using a footbath and another using inhalation have evaluated the effects lavender oil has on the ANS, and both displayed a trend toward lowered parameters.^{18,19} It should be noted that these studies displayed a trend but they lacked an adequate number of patients (n = 10,20), so if there was a difference it might not have been detectable. The study performed by Saeki et al. investigated the physiologic effects of a footbath with and without the addition of lavender oil (*Lavender angustifolia*) on the ANS measured by respiratory rate, electrocardiogram results converted into heart rate variability (HRV), and blood flow of the palmar side of the fingertips. Ten female subjects were chosen (aged 19-21). Four drops of lavender oil per 4L of hot water were used as a concentration. Three different conditions were established with each participant experiencing each treatment condition. The 3 treatment conditions consisted of no footbath and with a footbath either with or without lavender oil. The control condition was first and the duration was for 10 minutes. Next, 5 subjects received the footbath without the oil and 5 subjects received the footbath with the oil for 10 minutes. After the first treatment, 60 minutes passed before the footbaths were reversed. Data collection was 3 minutes prior, 10 minutes during, and 7 minutes after each footbath. A significant difference was seen for both footbaths for fingertip blood flow. No significant differences were seen between conditions for respiratory rate overall, but a trend toward a decrease was seen in both footbath conditions with slightly greater effects in the aromatherapy condition during the first 5 minutes. HRV changes were not significant between the conditions overall; however, a greater

decline was seen after the footbath for the aromatherapy condition.¹⁸

Romine et al. studied the effects of lavender (species unknown) on exercise recovery measured by diastolic and systolic blood pressures, mean arterial pressure, pulse pressure, and heart rate.¹⁹ Twenty undergraduate men walked briskly for 2 minutes. Afterwards, subjects were divided into 2 groups. One, a control, and the other received lavender inhalation via an electric potpourri device for 10 minutes. The oil concentration used was 10 drops in 500 mL of water. Measurements were recorded pre-exercise, immediately postexercise, and 10 minutes postexercise. There was a greater reduction in all measured parameters for the treatment group but the difference was not statistically significant. A randomized study was performed but subject baseline characteristics were not mentioned and, thus, no baseline data comparisons were made. In contrast, a randomized, controlled study evaluating aromatherapy massage with lavender oil in 122 intensive care unit (ICU) patients found no difference even though it was powered to 90% (n = 105) to detect a difference of 30%.²⁰ There was no difference in blood pressure, heart rate, or respiratory rate between groups. Patients were randomized to undisturbed rest, body massage, and body massage with 1% lavender (*Lavendula vera*) in grapeseed oil. Massages were given for 15-30 minutes. A minimum of one and a maximum of 3 sessions were done based on length of ICU stay and were separated at least 24 hours apart. Nurses were trained to administer massage for the study. It should be noted, however, that there was a significant difference in the patient's perceived anxiety compared with rest for the first session. Besides lavender, neroli or orange blossom (*Citrus aurantium* ssp. *aurantium*) has also been studied for its effects on the ANS.

Stevensen et al. in 1994 studied the physiologic and psychologic effects of neroli on patients recovering from cardiac surgery.²¹ One hundred patients were divided into 4 groups. Group one received a 20-minute foot massage with apricot kernel oil. Group 2 received a 20-minute foot massage with 2.5% neroli oil. Of the remaining 2 groups, group 3 received 20 minutes of verbal communication and group 4 had no intervention. On day one postoperatively, there was a significant psychologic benefit in both groups receiving massage compared with control in terms of anxiety and tension. However, statistically significant physiologic differences were limited to respiratory rate as an immediate effect of massage with or without the essential oil. A further follow-up questionnaire on day 5 postoperatively showed a trend toward greater and longer lasting psychologic benefits from the massage with the neroli oil compared with plain apricot kernel oil. Patients not receiving massage were not asked to complete the questionnaire, which asked questions to evaluate psychologic benefits as done on day one, as well as duration of the benefits, if any. At the end of the questionnaire, patients commented that they did enjoy the massage but did not mention any greater benefits from the addition of aromatherapy massage with neroli oil.

Woolfson and Hewitt studied the effects of lavender foot massage on intensive and coronary care patients.²² This study consisted of a foot massage given twice weekly for 5 weeks. Thirty-six patients were divided into 3 groups: lavender in almond oil foot massage, almond oil foot massage, and a control. There was a trend toward lowered heart rate, respiratory rate, and systolic blood pressure for both massage groups, with the lavender group being slightly lower.²² Although the were

promising, no statistical analysis were done. In addition, the species of lavender and the concentration were not mentioned nor were randomization and blinding performed, thus making conclusions from this study difficult to draw.

The perceived association of aromatherapy with a reduction in anxiety has sparked investigations into the use of aromatherapy in patients undergoing medical procedures. Clarke in 1999 investigated the effects of aromatherapy on stress reduction in patients receiving hemodialysis.²³ Twenty-one patients who received hemodialysis 3 times weekly for one week received vaporized essential oil combinations such as lavender, orange, and lemon in different combinations or a combination of cedarwood and rosewood. No control group was used and, therefore, all 21 patients experienced the same therapy. Stress reduction was measured by identifying the use and display of stress coping mechanisms and behaviors with the social readjustment rating scale (SRRS) completed by patients, a self-rated questionnaire completed by patients, behavior observed by colleagues, and journal entries from patients. At the end of each dialysis session, a notation was made in the journal and the SRRS and questionnaire were given to patients to complete and return at the start of the next treatment session. In addition, a section of the questionnaire was given one month after the trial for a summative evaluation. After analyzing the results, symptoms of stress were reduced by 6% when compared with baseline, but statistical analysis was not mentioned. Also, journal entries made by patients noted an increase in interactions with staff and other patients, and that the experience was calming and helped them to relax. Interestingly, after the trial, both patients and staff voted to continue the aromatherapy sessions at the center, even

though the benefits appeared to be attributable to increased attention given by staff members versus aromatherapy.²³

A double-blind, placebo-controlled, randomized trial investigated the efficacy of aromatherapy in reducing anxiety in 66 women waiting for surgical abortion using inhalation of either the oils of vetivert, bergamot, and geranium or hair conditioner as a placebo control.²⁴ Anxiety was assessed using a verbal anxiety scale and went from zero to 10, with zero being no anxiety. This scale was administered to the women before and after smelling the scents for 10 minutes. The results found a significant reduction in anxiety for both the treatment and the placebo group, with no difference between groups. The authors concluded that the reduction was probably because of a distraction, a pleasant smell, and/or sitting down and probably not because of the effects of the aromatherapy. However, they saw no reason to discourage the use of aromatherapy.²⁴

Cognition, Alertness, and Mood

There is some supporting evidence that aromatherapy can positively affect mood, alertness, and cognition.^{25, 26} Effects on alertness and relaxation have been noted by electroencephalogram (EEG) patterns in some studies.^{26, 27} The changes in EEG patterns may be associated with enhanced cognitive function as noted with math computation scores.²⁶ A total of 40 adults were administered lavender or rosemary by 3-minute inhalations with baseline measurements taken prior to the administration. EEG readings showed an increase in drowsiness for lavender and increased alertness for the rosemary group. Math computations after aromatherapy were faster in both groups but accuracy was slightly better in the lavender group only. The relaxation induced from the lavender

was thought to allow participants to concentrate better, leading to math score improvement.²⁶

Rosemary and lavender may affect memory and mood.²⁸ Moss et al. randomized a total of 144 healthy adults (undergraduate students and the public) to one of 3 independent groups. Subjects performed the Cognitive Drug Research (CDR) computerized cognitive assessment battery in a cubicle containing either the odor lavender (*Lavandula angustifolia*), rosemary (*Rosmarlnus officinalis*), or no odor (control). The CDR battery is accepted worldwide as an assessment of changes in cognitive function. The Bond-Lader visual analogue scales were used to assess mood.²⁸ The subjects who received rosemary by inhalation were found to have significant increases in alertness, memory, and contentedness, but impairment in memory speed compared with controls. Lavender aroma had a significant negative effect on memory, memory speed, and contentedness compared with controls. No significant differences in calmness were reported between the groups. Rosemary was found to have significant enhancements in memory compared with lavender. Although the results of this study were promising, it should be noted that a baseline comparison between groups was not done. This comparison would have assured continuity in cognitive function, especially since subjects consisted of members of the public and undergraduates.

Some patients have received benefit from aromatherapy for reducing behavioral disturbances associated with dementia. Sixty percent of 72 patients with severe dementia experienced a 30% reduction in agitation from baseline assessed by Cohen-Mansfield Agitation Inventory (CMAI) compared with 14% of the control group

($P < 0.0001$).²⁹ Patients were randomly assigned by nursing home locations (8 homes) to either aromatherapy with *Melissa* (lemon balm) or sunflower oil (placebo).²⁹ The oils were added to a lotion and applied to the patient's faces and arms twice daily for 4 weeks.²⁹ No differences in patient characteristics were found among the 8 sights ($P = 0.51$).²⁹ It was also noted that quality of life was improved in the treatment group, which was measured with subcategories of the Neuropsychiatry Inventory (NPI): (1) percent of time spent socially withdrawn ($P = 0.005$) and (2) engaged in constructive activities ($P = 0.001$).²⁹

Another placebo-controlled study done by Holmes et al. demonstrated a statistically significant reduction in agitated behavior measured with the Pittsburgh Agitation Scale (PAS) in patients with severe dementia. This study enrolled 15 patients with severe dementia and agitated behavior who received 3 diffused aroma streams of either lavender 2% or water (placebo) over 2 hours on alternate days.³⁰ Each patient received 5 streams of each producing 10 PAS scores for each patient.³⁰ A blinded rater who was unaware of the study design assessed individual behavior, and 60% showed an improvement in agitation ($P = 0.016$) compared with 33% with no change and 7% with worsening symptoms.³⁰ A subanalysis found that patients with Alzheimer's disease and vascular dementia benefited most compared with Lewy body and fronto-temporal lobe dementia.³⁰

Another small study involving only 4 patients with severe dementia showed one patient benefited from both aroma alone and massage alone.³¹ In this small study, agitation was measured using an individualized scale made from observing each patient so that each participant would

act as his own control.³¹ Each patient received 8 to 12 sessions of each treatment condition over 3 months.³¹ Treatment groups consisted of the following: no treatment, aromatherapy by inhalation with lavender oil, massage, and aromatherapy with massage.³¹ Observations were made every minute for an hour following treatment.³¹

Sleep

Limited information is available on the effects of aromatherapy on insomnia. A small preliminary study was conducted on 4 psychogeriatric patients to see if lavender oil could replace drug treatment.³² Three of these patients were using sedating medications for sleep (temazepam, promazine, chlormethiazole) for a range of 7 months to 3 years.³² Hours of sleep were measured for 6 weeks total.³² Two weeks while on medication, 2 weeks after medication was withdrawn, and 2 weeks while lavender was diffused into their ward.³² During the last 2 weeks, sleep times returned to the level prior to the medication being withdrawn.³² The authors concluded that lavender oil may provide a temporary relief from insomnia medication.³² From the limited information presented, however, it is difficult to draw a conclusion. The benefits derived may be attributable to the original cause of the insomnia being resolved.

In another small study, an attempt to reduce nighttime sedation in 10 hospitalized patients over 70 years of age was conducted.³³ Nurses trained to administer aromatherapy used vaporization and a 5-minute massage.³³ At the end of 2 weeks of aromatherapy treatment, patients reported a good night's sleep 97% of the time versus 73% prior to the therapy, and nightly sedation was reduced by 49%.³³ This study was limited by a lack of a control group, however, so improvements may be because

of the passing of time instead of aromatic therapy.

Pain

Pain relief during or after childbirth using aromatherapy has been investigated. Burns et al. conducted a 6-month pilot study to evaluate aromatherapy in 585 women during their labor. Attending midwives trained in aromatherapy selected the women while they were in labor based on whether or not the women had known allergies, wanted aromatherapy, and gave verbal consent.³⁴

The midwives selected essential oils and the method of administration.³⁴ The choice of oils were lavender, clary sage, peppermint, eucalyptus, chamomile, frankincense, jasmine, rose, lemon, and mandarin.³⁴

Several methods of administration were available, such as spraying a solution of 100 mL with 2 drops of oil onto a cloth object, a drop onto an absorbent card, and massage with 2 drops per 50 mL of almond oil.³⁴

Peppermint could be dropped directly on the forehead and frankincense could be administered by a drop on the palm.³⁴

Thirteen percent of the women used no other form of pain relief and 67% used the oils prior to other analgesia; however, it was not known at what point analgesia was given.³⁴

The other 20% used analgesia prior to using essential oils. The most popular oils chosen for analgesia were lavender, clary sage, and chamomile.³⁴ Midwives and mothers reported the effects of the oils after birth and prior to transfer from the delivery room.³⁴ A total of 62% of women described the essential oils as being “effective,” 12% reported the oils as being “not effective,” 17% were undecided, and 9% did not record a decision. Other parameters besides pain were evaluated but were not included in this discussion.

A randomized trial using lavender essential oil in a bath to relieve perineal discomfort

was conducted.³⁵ Six hundred thirty-five women were blinded, randomized, and divided into 3 groups. The women either received lavender essential oil, synthetic lavender oil, or aromatic placebo. Six drops of the oils were added to bath water for 10 days after delivery. Analysis of daily discomfort scores revealed no statistical differences among groups; however, there was a trend in the lavender essential oil group to have lower pain scores between days 3 and 5. In addition, the decrease in discomfort was not faster in any group.

Brownfield conducted a small, quasi-experimental study of 9 patients with rheumatoid arthritis. Patients were divided into 3 groups.³⁶ One group served as a control, one group received massage for 2 consecutive nights with lavender oil then massage for 2 consecutive nights without lavender oil. The other group received massage for 4 evenings, but first without lavender oil for 2 nights then with lavender oil for 2 nights.³⁶ The massages were performed for 10 minutes on the upper neck and shoulders of each patient for each night.³⁶ Visual Analogue Scales (VAS) were used to measure the patient’s perception of pain, sleep, and well-being.³⁶ The author hypothesized that people who slept better were better able to cope with pain, and that one’s perception of well-being has a direct relationship to pain.³⁶ Measurements were taken prior to massages and again after the second consecutive night of massage.³⁶ After the fourth night, an interview of the patient was done to explore subjective perceptions of the procedures.³⁶ Patient interviews revealed a positive effect on pain, sleep, and well-being and patients reported taking fewer analgesics.³⁶ However, VAS scores did not show improvements for pain and sleep after massages, which was contradictory to the patient interviews.³⁶ The author concluded that patients with

arthritis “may have difficulty distinguishing pain from stiffness.”³⁶

Symptoms of Cancer

Many cancer patients tend to turn to alternative medicine to provide comfort and relief from their symptoms. Several studies have investigated effects of aromatherapy on quality of life, anxiety, depression, and pain in patients with cancer. Trials of aromatherapy with massage and aromatherapy by inhalation have provided little support for any clinical benefit. However, study design and other variables should be taken into consideration when evaluating the results of studies evaluating the use of aromatherapy in patients with cancer.

Graham and colleagues studied the use of inhalation of essential oils during radiotherapy for reduction of anxiety or depression.³⁷ The study consisted of 3 arms: a control group without fragrance, a second control with a low-grade fragrant carrier oil, and the third group of pure essential oils of lavender, bergamot, and cedarwood.³⁷ Anxiety was assessed by the Hospital Anxiety and Depression Scale (HADS) and the Somatic and Psychological Health Report (SPHERE). At the end of treatment, anxiety was reduced in all groups. HADS scores, however, were significantly reduced in the control group compared with either of the fragrant arms ($P = 0.04$).³⁷

Another study evaluated the use of humidified lavender inhalation in cancer hospice patients to decrease pain, anxiety, and depression.³⁸ Patients received either a single, 60-minute session of a 3% solution of lavender from a potpourri pot, a 60-minute session of humidified water, or nothing at all. The variables measured were pulse, blood pressure, pain, anxiety,

depression, and sense of well-being (using 11-point verbal analogs). Seventeen patients completed the study. The results showed a small positive effect on blood pressure, pulse, pain, anxiety, depression, and sense of well-being after both the humidified water treatment and the lavender treatment groups. There was also a slight improvement in vital signs, depression, and sense of well-being, but not in pain or anxiety levels in the control group. It was thought that only one session was inadequate, and if the 60-minute sessions continued a greater benefit may have been derived.³⁸

A review of aromatherapy and massage in cancer patients was published in the Cochrane Library. The authors included only randomized control trials, trials with patient reported results, and those that used a trained massage therapist.³⁹ The goal of the review was to examine if aromatherapy and/or massage decreased psychologic morbidity, lessened symptom distress and/or improved the quality of life in patients with cancer. Ten trials met the author’s inclusion criteria. The other studies were eliminated mainly because of poor study design. After examining the data, the authors concluded that aromatherapy massage and massage alone can provide short-term benefits to psychologic well-being. There is limited evidence to support their use for anxiety but there is little evidence supporting an improvement in depression. Lastly, that is was controversial whether or not aromatherapy enhanced the effects of massage.³⁹ Some other trials not included in the Cochrane review using massage as a means of aromatherapy administration for cancer patients were met with similar mixed results.^{40,41}

Dermatologic Conditions

Essential oils used for dermatologic conditions exert their effects mostly likely

from absorption through the skin versus absorption through pulmonary and olfactory membranes. Currently, there is no cure for psoriasis but only means of maintaining symptoms at an acceptable comfort level. There is some anecdotal evidence to support the use of aromatherapy for psoriasis. Walsh reported that aromatherapy helped 15 of her clients over a 4-year period with moderate to severe psoriasis. Aromatherapy helped patients regain control during acute flare-ups and maintain acceptable symptoms thereafter.¹² Other benefits included reductions in the severity and frequency of flare-ups, increased self-esteem, and reduced embarrassment, leading to improvements in personal and social relationships.¹² A blend of essential oils was determined and added to a carrier oil. This mixture was applied twice daily and gently massaged into the skin.¹² Oil blends consisted of bergamot, lavender, lemon balm (*Melissa*), jasmine, geranium, and sandalwood.¹² The author did note that the first 2 to 3 days of treatment may temporarily worsen symptoms.

Alopecia areata is a condition affecting about 1% of the western population. It is believed to have an autoimmune cause that produces blotches of hair loss on the scalp.⁴² This condition can cause social embarrassment for the patient, but fortunately the hair may spontaneously rejuvenate if the duration of the condition has been less than one year.⁴² Patients tend to have worse outcomes if they have other autoimmune conditions, atopy, or a family history. A randomized, double-blind, controlled trial investigated the use of oils of cedarwood, lavender, thyme, and rosemary for treatment of patients with alopecia areata.⁴² Eighty-four patients with alopecia areata were randomized to the treatment or control group. The treatment consisted of a daily, self-administered scalp massage with the oils in a mixture of carrier oils (jojoba

and grapeseed) followed by a warm towel, which was wrapped around the head to promote absorption. The control group received the same carrier oils without the essential oils. Photos and a computer image analyzer were used to detect differences at 3 and 7 months from baseline. The results showed that 44% of the treatment group improved compared with 15% in the control group. The authors claim the improvement rate with aromatherapy is comparable to pharmaceutical therapy. The study, however, was criticized later in a commentary. The writer of the letter to the author noted that the method of randomization was not stated as well as the duration of the disease, which can significantly affect outcomes.⁴³ Therefore, the validity of this trial is questionable.

Tea tree oil is thought to be beneficial in patients having dandruff because of its antifungal activity.⁴⁴ The efficacy of tea tree oil for treatment of dandruff was assessed in a randomized, single-blind, parallel-group study. One hundred twenty-six patients were randomly assigned to receive 5% tea tree oil shampoo or placebo for 4 weeks.⁴⁴ The investigators were blinded but not the patients because it was assumed patients would discover which treatment they received.⁴⁴ Prior to beginning treatment, patients went through a 2-week washout period and then an assessment of dandruff quality and quantity at baseline.⁴⁴ Patients were reassessed after 2 and 4 weeks. Upon analysis, the tea tree oil group was determined to have a greasier scalp compared with the placebo group at baseline.⁴⁴ At both 2 and 4 weeks, patients receiving 5% tea tree oil had a significant reduction in dandruff quantity and quality with the exception of scaling.⁴⁴ There was a > 40% reduction in the treatment group versus 11% in the placebo group ($P = 0.001$).⁴⁴ Nevertheless, only one patient in

each group was free of dandruff after 4 weeks.⁴⁴ No serious adverse effects were reported.⁴⁴ The authors concluded that 5% tea tree oil appeared to be effective in reducing dandruff and that continued application may produce dandruff control.⁴⁴

Summary/Conclusion

Aromatherapy seems to produce some positive benefit as supportive treatment; however, evidence is limited at this time. Based on current literature, the following conclusions can be made:

Lavender by Inhalation May:

- Relieve anxiety in patients about to undergo dialysis
- Improve sleep by inducing drowsiness
- Increase accuracy on math computations
- Reduce agitation in patients with dementia

Rosemary by Inhalation May:

- Enhance alertness
- Enhance memory
- Increase speed in math computations

Neroli Massage May:

- Relieve anxiety in patients who have just had cardiac surgery

Topical *Melissa* Application May

- Reduce agitation in patients with severe dementia, as well as improve their quality of life

Topical Application of Tea Tree Oil May:

- Benefit patients with dandruff

In addition, the benefits of aromatherapy may not be for everyone and, until trials using adequate numbers of patients with improved study design are conducted, these patients will not be identified. However, it was not uncommon for patients to say they

would continue aromatherapy, as supported in several studies in which subjects found the experience to be a positive one, regardless of the study results.^{38,41,35,45,23} If patients enjoyed the experience, then their quality of life may have been enhanced, even if it was just for the time they were receiving the therapy. In addition, aromatherapy appears harmless if used properly, producing minimal, if any, adverse effects.^{35,46,30,29,44} The most common side effect appears to be a dermatitis.^{41,10,11,9} Other parameters that may warrant further consideration are the optimal aromatherapy massage technique and duration of treatment. Furthermore, it is important that oils from the same genus included in the study design be used, as different species may produce different results.

The most common way to expand on's knowledge in aromatherapy is through self-study. Several books, magazines, and websites contain reading material on aromatherapy. Classes on aromatherapy may also be offered through the community. However, the subject matter may vary, as well as the qualifications and experience of the instructors. For those who are more serious, comprehensive aromatherapy programs are offered via long distance and in classrooms. Teaching institutions offer a certificate or diploma in aromatherapy.⁷ About 200 hours of credit are required for the certificate or diploma, which follows the guidelines of the National Association of Holistic Aromatherapy. This organization has set and approved standards for the training of aromatherapists in the U.S. Interestingly, there is currently no state or national agency issuing licensure as an aromatherapist. But, some states may require a license in a "hands-on" field, such as massage, to legally touch a client. One should check with the requirements of each individual state prior to practicing. Recently

a new organization has been established in the U.S. called the Aromatherapy Registration Council. This organization has designed a national exam to assess a practitioner's knowledge and, if passed, the person's name will appear in a national registry. This novel idea has been met with mixed opinions from the aromatherapy industry, so time will decide its fate. In addition to receiving a certificate or diploma prior to practicing, it may be wise to obtain liability insurance. Many times, the teaching institution can recommend insurance providers to their graduates. It may also be beneficial to practice as an apprentice after school to gain invaluable experience. One can check with a local aromatherapist or aromatherapy store for networking opportunities.⁷

There are several pharmacist take-home counseling points for patients wanting to use aromatherapy. As with any CAM, patients should inform their health care provider of their use, as well as the names of the products. This is especially important if patients are being seen for dermatologic conditions. There may be drug interactions with the co-administration of aromatherapy OTC products and prescription therapies. It should also be emphasized that aromatherapy is used as a "complement" to current therapy, not a replacement. For example, patients should be warned not to abruptly stop taking their antidepressant, benzodiazepine, or try to use aromatherapy alone to treat a condition that has an established therapy. If patients do decide to use aromatherapy for a condition, they should be instructed to contact their health care provider if the condition persists or worsens. Currently, there appears to be little concern for severe adverse reactions from aromatherapy if used correctly. The most common adverse reaction appears to be dermatitis. Using essential oils over large

areas of the body, however, may produce unknown adverse events owing to systemic absorption. Because of a lack of data, it may be wise to deter from using aromatherapy or limit its use in patients who are pregnant, ill, babies or children, or the elderly.

For information on aromatherapy and help in locating products contact:

Bio Excel
75 E. Blithedale, #337
Mill Valley, CA 94941
415-482-0555

Lotus Light
P.O. Box 1008
Wilmot, WI 53170
www.lotuspress.com/lotuslight.html

National Association for Holistic
Aromatherapy (NAHA)
2000 2nd Ave., Ste. 206
Seattle, WA 98121
888-ASK-NAHA
www.naha.org

The Pacific Institute of Aromatherapy
P.O. Box 6723
San Rafael, CA 94903
415-479-9121
www.pacificinstituteofaromatherapy.com

Informative Readings

Advanced Aromatherapy: The Science of Essential Oil Therapy. Kurt Schnaubelt. Rochester, VT: Healing Arts Press, 1995.

Aromatherapy for Healing the Spirit. Gabriel Mojay. New York: Henry Holt, 1996.

Aromatherapy to Heal and Tend the Body. Robert Tisserand. Santa Fe, NM: Lotus Light Press, 1988.

The Art of Aromatherapy. Robert B. Tisserand. Rochester, VT: Destiny Books, 1987.

Clinical Aromatherapy in Nursing. Jane Buckle, R.N. London: Arnold/Hodder Headline Group, 1997.

Medical Aromatherapy: Healing with Essential Oils. Kurt Schnaubelt. Berkeley, CA: Frog Ltd., 1999.

The Practice of Aromatherapy. Jean Valnet. Rochester, VT: Inner Traditions, 1990.

Essential Oil Safety: A Guide for Healthcare Professionals. Robert B. Tisserand and Tony Balacs. Charchill Linvingstone, 1995.

References

1. Neldner KH. Complementary and alternative medicine. *Dermatol Clin*. 2000;18(1):189-93.

2. Cohen MH. Legal issues in complementary and integrative medicine: a guide for the clinician. *Med Clin North Am*. 2002;86(1).

3. Damian P, Damian K. Aromatherapy scent and psyche: using essential oils for physical and emotional well-being. Rochester: Healing Arts Press; 1995.

4. www.algonquincollege.com/ce/pm/CE6301X.html. Accessed September 10, 2004.

5. Price S. Using essential oils in professional practice. *Complement Ther Nurs Midwifery*. 1998;4:144-47.

6. www.positivehealth.com/permit/Articles/Aromatherapy/price27_p.htm. Accessed September 10, 2004.

7. www.aworldofaromatherapy.com/aromatherapy-introduction.htm. Accessed September 10, 2004.

8. Maria D. Making aromatherapy creams and lotions. Pownal: Storey Books; 2000.

9. Goldberg B. Alternative medicine: the definitive guide. Second edition. Berkeley: Celestial Arts;2002.

10. Knight TE, Hausen BM. Melaleuca oil (tea tree oil) dermatitis. *J Am Acad Dermatol*. 1994;30:423-7.

11. Van Der Valk PGM, De Groot AC, Bruynzeel DP, et al. Allergisch contacteczeem voor 'tea tree'-olie. *Ned Tijdschr Geneesk*. 1994;138(16):823-5.

12. Walsh D. Using aromatherapy in the management of psoriasis. *Nurs Stand*. 1996;11(13-15):53-6.

13. Fellowes D, Barnes K, Wilkinson S. Aromatherapy and massage for symptom relief in patients with cancer (Cochrane Review). *The Cochrane Library*. 2004;3.

14. Westcombe AM, Gambles MA, Wilkinson SM, et al. Learning the hard way! Setting up an RCT of aromatherapy massage for patients with advanced cancer. *Palliat Med*. 2003;17:300-7.

15. Anderson LA, Gross JB. Aromatherapy with peppermint, isopropyl alcohol, or placebo is equally effective in relieving postoperative nausea. *J Perianesth Nurs*. 2004;19(1):29-35.

16. Hasani A, Pavia D, Toms N, et al. Effects of aromatics on lung mucociliary clearance in patients with chronic airways

obstruction. *J Altern Complement Med*. 2003;9(2):243-49.

17. Claffey N. Essential oil mouthwash: a key component in oral health management. *J Clin Periodont*. 2003;30(Suppl.5):22-4.

18. Saiki Y. The effect of foot-bath with or without the essential oil of lavender on the autonomic nervous system: a randomized trial. *Complement Ther Med*. 2000;8:2-7.

19. Romine IJ, Bush AM, Geist CR. Lavender aromatherapy in recovery from exercise. *Percept Mot Skills*. 1999;88:756-58.

20. Dunn C, Sleep J, Collett D. Sensing an improvement: an experimental study to evaluate the use of aromatherapy, massage and periods of rest in an intensive care unit. *J Adv Nurs*. 1995;21:34-40.

21. Stevensen CJ. The psychophysiological effects of aromatherapy massage following cardiac surgery. *Complement Ther Med*. 1994;2:27-5.

22. Woolfson A, Hewitt D. Intensive aromacare. *The International Journal of Aromatherapy*. 1992;4(2):12-3.

23. Clarke DA. Advancing my health care practice in aromatherapy. *Aust J Holist Nurs*. 1999;6(1):32-38.

24. Wiebe E. A randomized trial of aromatherapy to reduce anxiety before abortion. *Eff Clin Pract*. 2000;4:166-69.

25. Motomura N, Sakurai A, Yotsuya Y. Reduction of mental stress with lavender odorant. *Int J Neurosci*. 2001;93:713-18.

26. Diego MA, Jones NA, Field T, et al. Aromatherapy positively affects mood, EEG

patterns of alertness and math computations. *Int J Neurosci*. 1998;96:2117-24.

27. Lorig TS, Schwartz. EEG activity during fine fragrance administration. *SPR Abstracts*. 1987;24:599.

28. Moss M, Cook J, Wesnes K, et al. Aromas of rosemary and lavender essential oils differentially affect cognition and mood in healthy adults. *Int J Neurosci*. 2003;113:15-38.

29. Ballard CG, O'Brien JT, Psych MRC, et al. Aromatherapy as a safe and effective treatment for the management of agitation in severe dementia: the results of a double-blind placebo-controlled trial with *Melissa*. *J Clin Psychiatry*. 2002; 63(7):553-8.

30. Holmes C, Hopkins V, Hensford C, et al. Lavender oil as a treatment for agitated behavior in severe dementia: a placebo controlled study. *Int J Geriatr Psychiatry*. 2002;17:305-8.

31. Brooker DJR, Snape M, Johnson E, et al. Single case evaluation of the effects of aromatherapy and massage on disturbed behavior in severe dementia. *Br J Clin Psychol*. 1997;36:287-96.

32. Hardy M, Kirk-Smith MD, Stretch DD. Replacement of drug treatment for insomnia by ambient odour. *Lancet*. 1995;346:701.

33. Cannard G. On the scent of a good night's sleep. *Nurs Stand*. 1995;9(34):21.

34. Burns E, Blamey C. Using aromatherapy in childbirth. *Nurs Times*. 1994;90(9):54-60.

35. Dale A, Cornwell S. The role of lavender oil in relieving perineal discomfort following childbirth: a blind randomized clinical trial. *J Adv Nurs*. 1994;19:89-96.

36. Brownfield A. Aromatherapy in arthritis: a study. *Nurs Stand*. 1998;13(5):34-5.
37. Graham PH, Browne L, Cox H, et al. Inhalation aromatherapy during radiotherapy: results of a placebo-controlled double-blind randomized trial. *Am J Clin Oncol*. 2003;21(12):2372-6.
38. Louis M, Kowalski SD. Use of aromatherapy with hospice patients to decrease pain, anxiety, and depression and to promote an increased sense of well-being. *Am J Hosp Palliat Care*. 2002;19(6):381-386.
39. Fellowes D, Barnes K, Wilkinson S. Aromatherapy and massage for symptom relief in patients with cancer (Cochrane Review). *The Cochrane Library*. 2004;3.
40. Soden K, Vincent K, Craske S, et al. A randomized controlled trial of aromatherapy massage in a hospice setting. *Palliat Med*. 2004;18:87-92.
41. Wilcock A, Manderson C, Weller R, et al. Does aromatherapy massage benefit patients with cancer attending a specialist palliative care day centre? *Palliat Med*. 2004;18:287-90.
42. Hay I, Jamieson M, Ormerod A. Randomized trial of aromatherapy: successful treatment for alopecia areata. *Arch Dermatol*. 1998;134:1349-52.
43. Kalish RS. Randomized trial of aromatherapy: successful treatment for alopecia areata. *Arch Dermatol*. 1999;135:602-3.
44. Satchell AC, Saurajen A, Bell C, et al. Treatment of dandruff with 5% tea tree oil shampoo. *J Am Acad Dermatol*. 2002;47(6):852-5.
45. Corner J, Cawley N, Hildebrand S. An evaluation of the use of massage and essential oils on the wellbeing of cancer patients. *Int J Palliat Nurs*. 1995;1(2):67-73.
46. Booker DJR, Snape M, Johnson E, et al. Single case evaluation of the effects of aromatherapy and massage on disturbed behavior in severe dementia. *Br J Clin Psychol*. 1997;36:287-6.