



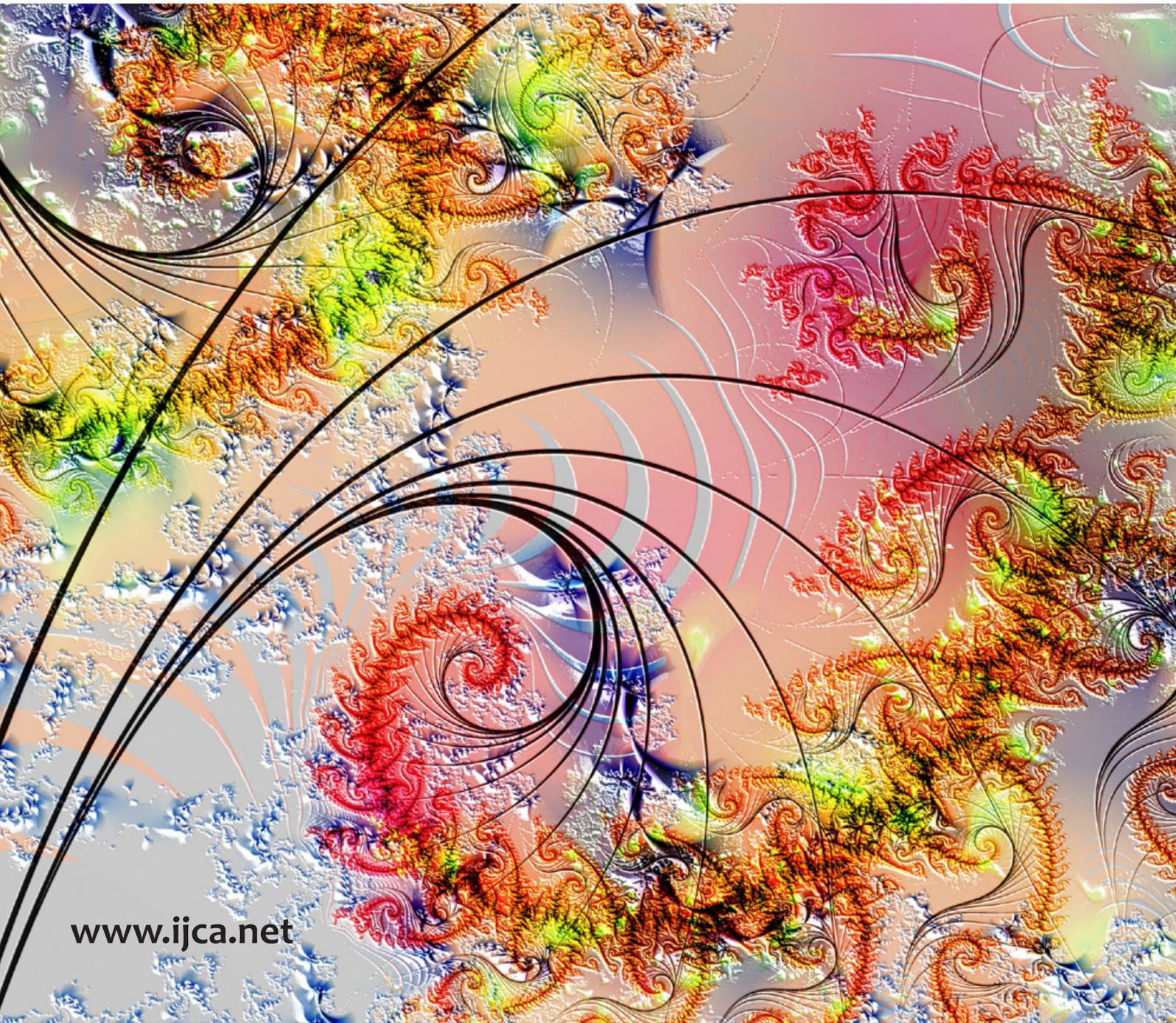
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### Rédaction/Publication:

Essential Oil Resource Consultants EURL  
Chemin des Achaps  
83840 La Martre  
FRANCE  
Tel/fax: (+33) 483 11 87 03

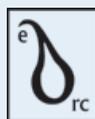
Rédactrice/Editor: Rhiannon Harris Lewis

Email: [editor@ijca.net](mailto:editor@ijca.net)

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## EDITORIAL

In recent years there has been an important shift in approach for the management of complex chronic and life-limiting diseases that are typically accompanied by a high symptom burden. Increasingly, health care professionals are including the patient in a dynamic, engaging and responsible relationship with regards managing their own symptoms, emphasizing patient responsibility, enhancing self-efficacy and encouraging healthy behaviours. As a result, across a number of disease states, health outcomes have improved along with reduced symptom reporting and positive improvements in quality of life (Hoffman, 2013; Grady & Gough, 2014).

As symptoms are by their very nature subjective physical or psychological experiences of ill health or dysfunction, patient autonomy is paramount along with education, support and monitoring. This organic and holistic approach to empowering patients to actively identify and cope with their symptoms is beautifully supported with the judicious use of essential oils. Self-care is the key to effective care and aromatherapy offers both physical and psychological benefits that can

easily be incorporated into the patient's daily routine. Promoting self-care demands skill and commitment on the part of the therapist; optimum efficacy is obtained when interventions are tailor-made and specific to the symptom in question, readily implemented with clear instructions, realistically achievable and measurable in terms of outcome. The therapist-patient relationship is necessarily one of collaboration and engagement that extends to and includes other members of the health care team as well as the patient's family. In this issue of the IJCA we include three papers that offer examples of aromatherapeutic approaches that require engagement and motivation on the part of the patient and that lead to positive and measurable aromatic benefits.

Hoffman AJ. Enhancing self-efficacy for optimized patient outcomes through the theory of symptom self-management. *Cancer Nurs.* 2013;36(1):e16-e26.

Grady PA, Gough LL. Self-management: a comprehensive approach to management of chronic conditions. *AM J Public Health.* 2014;104(8):e25-e31.

Rhiannon Lewis

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# Insomnia in patients with cancer: The potential of aromatherapy

Carol Rose

Clinical Aromatherapist, RMT  
The Aromary, Kerikeri, New Zealand  
carol@thearomary.co.nz

Sleep disturbance is highly prevalent in the cancer population. Patients report difficulties getting off to sleep, maintaining sleep and waking too early, all of which contribute to an increase in daytime-napping and fatigue (Davidson et al, 2002). Characterised as insomnia, there is currently limited evidence to support interventions which aid sleep in this patient group. Consequently, clinicians are guided by insomnia management of the general population which is predominantly pharmacological and does not necessarily address the specific and often complex issues experienced by patients with cancer.

Qualitative studies identified that the primary concerns of these patients in relation to sleep disturbance are: worry and anxiety, hot flushes, night sweats, difficulty in finding a comfortable position and restless leg syndrome (Davidson et al, 2007; Flynn et al, 2010). Patients also report a preference for non-pharmacological interventions (Davidson et al, 2007). Within aromatherapy, insomnia and the management of psychological and menopausal issues have been central areas of research within the general population (Buckle, 2015). Whilst these interventions are promising for patients with cancer, the broader potential of aromatherapy is yet to be fully evaluated in this patient group. This paper explores insomnia as it relates to patients with cancer and considers several areas where interventions to optimise sleep quality can be seamlessly integrated into clinical practice and guide future research initiatives.

## Introduction

Sleep is a fundamental human requirement. However, sleep problems are common in the general population with approximately 10-15% suffering insomnia associated with stress, illness, medication and ageing (Palesh et al, 2010). The National Sleep Foundation (2017) characterises insomnia by its impact on a person's sleep quality and quantity which relates to difficulties in getting off to sleep, maintaining sleep, or returning to sleep after waking early. This can occur either singly, or in a combination, which significantly impacts daytime functioning and has occurred for three nights a week for at least three months.

Epidemiological studies report that within the general population, women experience insomnia more frequently than men, with a higher prevalence in individuals who are separated, divorced or widowed, together with an increase in anyone who is unemployed or of a low income (Ohayon, 2002). Whilst these factors co-exist in patients with cancer, Palesh et al (2010) report a higher prevalence of insomnia in this patient group (30-50%), although this may be somewhat under-estimated given that not all patients report sleep disturbance to their clinical teams (Engstrom et al, 1999). In patients with advanced staged disease, Mystakidou et al (2009) estimates between 45-95% experience insomnia.

## Characteristics of insomnia in patients with cancer

Whilst insomnia may already pre-exist in patients with cancer, the fact that sleep disturbance affects more than double than that of the general population, suggests other factors are involved. These could relate to diagnosis, the cancer itself, its treatment or other physical and psychological issues.

### Diagnosis

Within the oncology literature, the onset of insomnia often coincides with the patient's original diagnosis. In a large scale survey conducted by Davidson et al (2002), 300 patients with various cancer types at different phases of treatment, reported insomnia. Of these, 48.2% related the onset to within the 6-month period pre-diagnosis to 18-months post-diagnosis. The impact of disturbed sleep, as reported by patients, is listed in Table 1.

### Cancer type and staging

To date, the majority of oncology-based sleep research has focussed on women with breast cancer, who are considered prone to insomnia resulting from treatment-induced menopause and depression (Fiorentino & Ancoli-Israel, 2007), distress and anxiety (Cimprich, 1992), as well as fatigue (Davidson et al, 2002). In comparison to patients with differing cancers, Davidson et al (2002) identified that those with lung cancer experience the most disrupted sleep. Concerns about diagnosis and their rapid decline in health contribute to patient's increased stress and consequent insomnia.

**Table 1. Patient reports from survey conducted by Davidson et al (2002)**

<p><b>The impact of insomnia in patients with cancer (n=300)</b></p> <ul style="list-style-type: none"><li>• Waking several times during the night (76%)</li><li>• Difficulty falling asleep (44%)</li><li>• Waking for long periods of time (35%)</li><li>• Waking too early (33%)</li></ul>
---

Additionally, these patients are more likely to have other related disorders such as chronic obstructive pulmonary disease, known to disrupt sleep and cause daytime sleepiness.

Anecdotal evidence supports the increased prevalence of insomnia in patients with advanced cancer and in the end stage of life, although few studies have clinically investigated sleep disturbance in this area.

### Treatment-related issues

A similar incidence of insomnia exists across the common treatment types of chemotherapy, radiotherapy and surgery (Davidson et al, 2002), although the causal relationships remain unknown. Women receiving chemotherapy for the treatment of breast cancer were identified as being at higher risk for insomnia symptoms (Savard et al, 2001), with sleep disturbance starting prior to treatment cycles and persisting for up to 1-year after chemotherapy completion (Kotronoulas et al, 2012). For patients receiving radiotherapy treatment, Miaskowski et al (2011) reported significant sleep-disturbance at the onset of treatment which increased as therapy progressed, predominantly with initiation and maintenance of sleep.

### Circadian rhythm and inflammation

Evidence of relationships between circadian rhythm, inflammatory processes in cancer and sleep disturbance have been reported (Fiorentino & Ancoli-Israel, 2007). Although outside the scope of this paper, readers are directed to the work of Savvidis & Koutsilieris (2012), who discuss deregulation of these molecular mechanisms which can directly impact the sleep-wake cycle.

### Concurrent symptoms

Whilst insomnia may occur alone in patients with cancer, several researchers report sleep-disturbance as part of a cluster of concurrent symptoms, particularly fatigue, pain and psychological distress (Engstrom et al, 1999; Flynn et al, 2010). The crucial question of whether insomnia contributes to the incidence and severity of these other symptoms, or, whether these symptoms contribute to insomnia, remains unanswered. Furthermore, several

medications used to manage concurrent symptoms such as, corticosteroids, stimulant anti-depressants, diuretics and bronchodilators can also interfere with sleep (Hugel et al, 2004).

### Psychological issues

Regardless of the cancer type, stage of disease or treatment, insomnia can significantly impact the patient's psychological well-being. Patients consistently report that insomnia affects their ability to cope with stress, their emotions and ability to concentrate (Davidson et al, 2002; Flynn et al, 2010). The most prevalent thoughts and concerns which disturb their sleep are listed in Table 2.

Insomnia impacts the patient's quality of life and increases the intensity of symptoms such as pain, anxiety and depression (Hugel et al, 2004). The inter-relationships between these psychological factors and sleep disturbance were central to a longitudinal study conducted by Palesh et al (2007). Key findings of this study (summarised in Table 3) were that pain and life stress were more predictive of insomnia whilst depression was more predictive of the consequences of insomnia. Whilst these results pertain to women with metastatic breast cancer, this study offers important insight into our understanding of psychological factors and sleep disturbance which can aid clinical assessment and appropriate intervention in the cancer population. Currently, the management of insomnia tends to be generalised in its approach.

**Table 2. Patients with cancer: thoughts and concerns which disturb their sleep (Davidson et al, 2002; Hugel et al, 2004; Flynn et al, 2010)**

- Family & friends
- Diagnosis
- Personal health
- Physical effects of the cancer
- Upcoming Doctor's appointments
- Follow-up tests
- Recurrence of disease
- Finances
- The future

## Current management of insomnia in patients with cancer

Despite the prevalence and severity of insomnia in patients with cancer, there is limited evidence to support interventions which improve sleep quality. Current clinical management can be categorised into pharmacological and non-pharmacological approaches.

### Pharmacological approaches

A systematic review conducted by Howell et al (2014), identified an absence of randomised controlled trials involving pharmacological interventions for insomnia in patients with cancer. Consequently, clinicians are guided by pharmacology used for managing primary insomnia in the general population. This largely consists of the benzodiazepine group, recommended for short term use; sedating anti-depressants; sedating anti-histamines and melatonin. Given the complexity of cancer treatment, additional medications for concurrent symptoms, combined with the disease itself (which may involve the central nervous system either directly or indirectly), several authors agree that careful consideration is required when prescribing insomnia medication in this patient group (Khemlani, 2008; Howell et al, 2014; Kamell & Smith, 2016). In addition, Howell et al (2014) asserts the lack of evidence in safety or side effects of current insomnia pharmacology which may preclude its long-term use in patients with cancer. Furthermore, many patients feel overwhelmed by the 'polypharmacy' associated with cancer treatments and symptom management, making them hesitant to take further prescribed medication for their sleep issues (Fiorentino & Ancoli-Israel, 2007). Their preference is to receive more information about sleep management with an emphasis on non-pharmacological approaches (Davidson et al, 2007).

### Non-pharmacological approaches

Systematic reviews of the oncology literature consistently feature cognitive behavioural therapy (CBT) as an important non-pharmacological intervention for insomnia (Page et al, 2006; Garland

**Table 3. Predictors of sleep disturbance in women with metastatic breast cancer (Palesh et al, 2007)**

Predictors of sleep disturbance	Baseline scores	Subsequent scores at 4, 8 & 12-months of baseline
Depression	Higher baseline scores of depression resulted in: <ul style="list-style-type: none"> <li>• Decreased number of hours asleep per night</li> <li>• Increased problems with waking up during the night</li> <li>• Increased incidence of daytime sleepiness</li> </ul>	Subsequent scores of increasing levels of depression resulted in: <ul style="list-style-type: none"> <li>• Further decreases in numbers of hours asleep</li> <li>• Greater frequency of waking during the night</li> <li>• Increased problems of daytime sleepiness</li> </ul>
Pain	Higher levels of pain at baseline resulted in: <ul style="list-style-type: none"> <li>• Increased difficulty in getting to sleep</li> <li>• Increased problems with waking up during the night</li> </ul>	Subsequent scores of increasing levels of pain resulted in: <ul style="list-style-type: none"> <li>• Further decreases in numbers of hours asleep</li> <li>• Greater frequency of waking during the night</li> </ul>
Life stress	Higher baseline scores of life stress resulted in: <ul style="list-style-type: none"> <li>• Increased difficulty getting to sleep</li> <li>• Increased problems with daytime sleepiness</li> </ul>	Only measured at baseline

et al, 2014). Using a multi-intervention approach, CBT has shown improvements in sleep quality (Savard & Morin, 2004), sleep efficiency (Davidson et al, 2002) and longer duration of sleep in patients with cancer. Whilst Garland et al (2014) propose the most effective CBT interventions for this patient group (see Table 4), the authors call for improved access and increased awareness of such approaches in cancer care.

Although the efficacy of CBT interventions look promising, its advantage over other non-pharmacological interventions remains inconclusive. Howell et al (2014) attributes this to the poor quality of studies investigating the effectiveness of other interventions, including complementary therapies. Similar conclusions were published in earlier reviews where aromatherapy scarcely featured (Page et al, 2006; Langford et al, 2012). This is surprising given that aromatherapy has been central to the non-pharmacological management of insomnia in the general population for several decades and is worthy of investigation within the cancer population. As such, it is important to consider the clinical evidence.

### **Aromatherapy in insomnia: current clinical evidence**

In a list of studies investigating insomnia as an end-point, Buckle (2015) identified essential oils used to alleviate sleep disturbance in adults and children with various pathologies (see Table 5). Applications varied between topical, inhaled and diffusion with essential oil of *Lavandula angustifolia* (lavender) being the most widely investigated.

Tisserand & Young (2013) list *Lavandula angustifolia* (lavender) as an essential oil whose major constituent of linalool, potentiates gamma-aminobutyric acid (GABA) receptor responses within the central nervous system. This is associated with anxiolytic and sedating effects on the central nervous system, making it potentially useful in the management of insomnia. In their extensive review of essential oil studies, Dobetsburger & Buchbauer (2011) conclude that single fragrance components of essential oils, as well as the oil in its entirety, directly influence the central nervous system, aiding relaxation, sedation and sleep.

Table 4. Cognitive behavioural therapy: a multi-intervention approach (Adapted from Garland et al, 2014)

Cognitive behavioural therapy	Brief description of the intervention
Sleep hygiene	Teaches good sleeping habits including: <ul style="list-style-type: none"> <li>• Reduce total caffeine intake and avoid consumption in the later hours of the day</li> <li>• Avoid nicotine before bedtime</li> <li>• Avoid heavy meals within 2-hours of bedtime</li> <li>• Reduce fluid intake after dinner to reduce/prevent nocturnal urination</li> <li>• Incorporate exercise into the day but not within 4-hours of bedtime</li> <li>• Minimise noise (earplugs may be required)</li> <li>• Be exposed to natural daylight for at least 30-mins in the morning</li> <li>• Avoid napping</li> <li>• Get up in the morning at the same time each day</li> </ul>
Stimulus control	<ul style="list-style-type: none"> <li>• Associate the bedroom only with sleep and sex</li> <li>• Avoid reading or watching television in the bedroom</li> <li>• Go to bed only when tired</li> <li>• Leave the bedroom if not asleep within 15-20 minutes (repeat as necessary throughout the night)</li> <li>• Keep the bedroom at a comfortable temperature</li> <li>• Set aside a time to relax before bed and use relaxation techniques</li> </ul>
Sleep restriction <i>(Requires monitoring and support; caution in those with epilepsy, parasomnias and bipolar disorders)</i>	<ul style="list-style-type: none"> <li>• Document time asleep in a “sleep diary” (written in the morning)</li> <li>• Restrict time in bed to the average estimated sleep time</li> <li>• Time spent in bed not less than 5-hours</li> <li>• Morning wake-up time should remain the same</li> <li>• Sleep efficiency determines increased increments of time in bed, calculated by: dividing total sleep time by time spent in bed, then multiply by 100 = sleep efficiency</li> </ul>
Paradoxical intention	Seeks to remove the fear of not being able to sleep by advising the patient to remain awake
Relaxation therapy	Aimed at de-activating hyperarousal and includes: Visualisation; Autogenic training; Biofeedback training; Hypnosis; Progressive muscle relaxation; Controlled breathing; Repetitive focus; Paced respirations.

Within the cancer population, the effects of aromatherapy in insomnia management have been investigated in two ways. Firstly, as a concurrent symptom, as exemplified in the study conducted by Parks et al (2016), who considered the effects of aromatherapy hand massage with variables of fatigue and sleep in hospice-based patients. Secondly, within the broader context of physical and psychological evaluation of aromatherapy interventions, as demonstrated in studies investigating the effectiveness of aromatherapy massage in patients with cancer (Corner et al, 1995; Soden et al, 2004; Wilkinson et al, 2007; Sefarty et al, 2012).

Currently, the only published aromatherapy paper to consider insomnia as a single variable in patients with cancer is a prospective audit conducted by Dyer et al (2016). Of the 65 patients who received aromatherapy inhaler devices to facilitate sleep, 83% were female and 17% were male with a variety of cancer diagnoses. Patients chose from three prepared blends (see Table 6), were instructed on how to use the device and could self-administer as often as required. Overall, 94% of patients reported they used the device to aid sleep with 92% reporting they would continue to use it.

**Table 5. Studies on insomnia and essential oils used (from Buckle, 2015)**

Essential oils used
<i>Lavandula angustifolia</i> (lavender)
<i>Citrus reticulata</i> (mandarin)
<i>Ravensara aromatica</i> (ravensara)
<i>Origanum majorana</i> (sweet marjoram)
<i>Anthemis nobilis</i> (Roman chamomile)
<i>Salvia sclarea</i> (clary sage)

## The potential of aromatherapy

Clearly, insomnia in patients with cancer is both multi-factorial and complex in nature. Aromatherapy interventions which have shown promise with insomnia in the general population have not been fully evaluated in patients with cancer. Whilst this indicates a need for further quality research, the success of any aromatherapy intervention in this area is dependent upon consideration of issues specific to the patient's insomnia experience which include:

- Patient's perspective
- Insomnia assessment
- Aromatherapy intervention
- Evidence-based practice

### Patient's perspective

From the patient's perspective, insomnia is not exclusively a night-time problem, it is a round-the-clock symptom affecting every part of their lives. Qualitative researchers report that patients with cancer tend to focus on the consequences of insomnia such as, daytime sleepiness, lack of sustained concentration and the impact this has on their personal and working relationships (Flynn et al, 2010). Conversely, Araujo et al, (2017) identified that clinicians do not routinely discuss such sleep issues with patients, preferring to focus on standard diagnostic criteria with greater emphasis on underlying causes. The situation is further complicated by the fact that patients are reluctant to inform their clinical team of sleep disturbances, assuming it to be a temporary and normal consequence of cancer and its treatment (Davidson et al, 2007).

**Table 6. Blends used for insomnia management via personal aromatherapy inhaler (Dyer et al, 2016)**

Blend	Essential oils used
Blend A	<i>Citrus bergamia</i> (bergamot) <i>Santalum austracaledonicum</i> (sandalwood)
Blend B	<i>Boswellia carterii</i> (frankincense) <i>Citrus reticulata</i> (mandarin) <i>Lavandula angustifolia</i> (lavender)
Blend C (Proprietary blend)	<i>Citrus sinensis</i> (sweet orange) <i>Citrus aurantium</i> (petitgrain) <i>Lavandula hybrida</i> (lavandin) <i>Citrus reticulata</i> (mandarin) <i>Citrus bergamia</i> (bergamot) <i>Lavandula angustifolia</i> (lavender) <i>Anthemis nobilis</i> (Roman chamomile)

Within aromatherapy, the holistic nature of clinical practice offers a broad perspective. Skilful communication facilitates space for patients to explore insomnia within its physical, psychological, emotional, social and spiritual contexts. Gaining a clear perspective of the patient's individual insomnia experience is crucial and requires sensitive assessment.

### Insomnia assessment

Patients may not always describe symptoms that are related to their sleep problems. To assist healthcare professionals, the National Health Service, recommend sleep assessment in six main areas (NHS Clinical Knowledge summaries: Insomnia, 2010, cited in Howell et al, 2014). These are listed in Table 7. If a patient maintains a daily sleep journal, they should do so for a minimum of two weeks.

**Table 7. National Health Service recommended guidelines for insomnia assessment (NHS Clinical Knowledge summaries: Insomnia, 2010, cited in Howell et al, 2014)**

- Explore the persons beliefs about sleep
- Ask about the impact insomnia has on the person’s quality of life, daytime functioning, ability to drive, employment, relationships and mood
- Determine whether there is an underlying cause of insomnia or an associated co-morbid condition (a detailed history recommended to include life stressors, medication and physical examination)
- Take a sleep history
- Determine the duration of symptoms
- Ask the patient to complete a sleep diary

Collectively, this structured approach offers a comprehensive understanding of how insomnia affects the individual during a 24-hour day over a period of time, as well as identifying critical areas of concern, such as uncontrolled symptoms. However, it must be noted that Table 7 contains terminology, such as the word “insomnia”, that may not be familiar to the patient. Conscious listening and using the patient’s own words can enrich the assessment process and make it feel less prescriptive.

For aromatherapists, sensitive assessment provides meaningful insight into essential oils beneficial to the unique needs of the patient, together with suitable application and appropriate timings. Collaboration with the patient’s multi-disciplinary healthcare team is important to assist integration of aromatherapy interventions alongside mainstream medical approaches.

**Aromatherapy intervention**

Consistent themes about sleep disturbance have emerged from qualitative interviews with patients with cancer (Davidson et al, 2002; Hugel et al, 2004; Flynn et al, 2010), the most prevalent being:

1. psychological issues
2. difficulty with temperature regulation
3. positioning and
4. restless leg syndrome

These will be discussed within the context of aromatherapy intervention.

**1. Psychological issues**

*“I think it was more psychological.....once they tell you you’ve got cancer, it is like a death sentence. Your mind goes to playing tricks on you, and it is devastating, and it is hard to overcome”* (Excerpt from a patient with lung cancer: Flynn et al, 2010).

The impact of insomnia reported by patients (see Table 1), the worries and concerns which keep them awake at night (see Table 2), together with the inter-relationships between insomnia and psychological variables of pain, life-stress and depression (see Table 3), offer vital clues as to what may be disturbing their sleep.

Within aromatherapy, essential oils containing anxiolytic and sedating properties to calm the central nervous system, are particularly beneficial for patients experiencing difficulty getting off to sleep and maintaining sleep. These have been previously explored within the context of spiritual distress in this patient group, whereby negative thought processes escalate at night and generate insomnia (Rose, 2017).

The increased frequency of sleep disturbance, long periods of time awake and waking too early are considered ‘consequences of insomnia.’ Palesh et al (2007) correlated these with depression, whereby patients struggle to get up in the morning and subsequently feel tired and fatigued throughout the day. Although this relationship was identified in women with breast cancer, similar reports have been made by patients with a variety of other cancer diagnoses (Davidson et al 2002; Flynn et al, 2010). The uplifting and revitalising properties of

monoterpene-rich oils would be suited to morning and daytime use to off-set 'daytime-napping'. These have been previously explored within the context of cancer-related fatigue (Rose, 2016).

A critical consideration for aromatherapists in this area, is the most appropriate method of application. Aromatherapy massage has consistently been a popular choice in patients with cancer for deep-level psychological and physical comfort (Corner et al, 1995; Dunwoody et al, 2002), although the long-lasting effects in alleviating depression were not demonstrated (Soden et al, 2004; Wilkinson et al, 2007).

More recently, inhaled forms of essential oils, via personalised inhalation devices, are emerging as an effective method of insomnia management in patients with cancer (Stringer & Donald, 2011; Dyer et al, 2016). Such devices offer patients the opportunity to take control of their symptom management. Dyer et al (2016) advocate that patients use the device as often as required, making it a flexible treatment option for those who experience repeated nocturnal disturbance and difficulties returning to sleep. Further research is required.

## 2. Difficulty with temperature regulation

Most commonly related to hot flushes and night sweats, the impact of sleep disturbance can be fully appreciated by this patient's description (excerpt from Flynn et al, 2010):

*"My sleep was affected a great deal by night sweats. In fact, in a lot of ways, I think of that as being the worst part of it....I would wake up sometimes 3 times a night....(with my) shirt completely soaking wet – it's just the worst. Sheets soaking wet, pillowcase wet. So that really affected my sleep."*

As previously discussed, sudden onset menopause can be a result of treatment protocols, although the symptom of night sweats is not exclusive to breast/ovarian cancers. It can also be related to other malignant pathologies including prostate, lung, liver and pancreas or to infections, hormone treatments and medications (Cancer Research UK, 2017). Whilst the frequency and intensity of sweats may reduce with medication, treatment of disease or underlying infections, it is a symptom that requires

compassionate care and understanding.

For patients, nocturnal sweats can be intense, distressing and debilitating, particularly if the patient is at home and having to repeatedly cope with complete changes of bedlinen.

Primarily, essential oils and botanical hydrosols with cooling properties have been used for the management of hot flushes and night sweats, applied topically through massage, bathing, or spritzers (Buckle, 2015). In a small study of women with breast cancer (n=44), Dyer et al (2008) reported a reduction in the number and duration of hot flushes in 41% of women using botanical hydrosols of *Mentha x piperita* (peppermint) with *Citrus aurantium var amara flos* (neroli) compared to plain water spray. However, cold applications to reduce hot flushes and sweating may exacerbate the problem by causing the body to react by producing more heat. Knapp-Hayes (2015) advocates the use of tepid temperatures for topical interventions in these situations. Diluting smaller quantities of hydrosol in water, such as 2mls per litre of water for *Mentha x piperita* (peppermint) hydrosol and 5-10ml per litre of water for *Citrus aurantium var amara flos (neroli)* may also be beneficial. Other hydrosol choices could include *Rosa damascena* (rose) or *Cupressus sempervirens* (cypress), the latter being particularly effective for its additional deodorising ability.

An important consideration here is that botanical hydrosols require refrigeration which may, inadvertently, exacerbate body heat if used as a cold-spritzer, paradoxically reducing the intended therapeutic effect. Comparing the value of cold versus tepid temperatures of aromatherapy interventions for the management of hot flushes and night sweats, warrants further investigation. Potentially, this could radically change current management strategies for hot flushes and night sweats within cancer care.

Stress is also considered a precipitating factor for hot flushes and sweats. CBT relaxation techniques including, paced-breathing, relaxation and hypnosis, are other promising non-pharmacological approaches currently being investigated (Olver, 2011). Other practical measures which may bring comfort include those listed in Table 8.

**Table 8. Practical interventions for the management of nocturnal sweats (Cancer Research UK, 2017)**

- Avoid alcohol and caffeine as this dilates the blood vessels in the skin, increasing sweating
- Avoid spicy foods and eating large meals late at night
- Keep your room at a cool, comfortable temperature
- Have a fan nearby at night
- Wear layers of clothes so you can easily take off or put on a layer to adjust your temperature
- Use light bedclothes so you can take some off if you get hot
- If you are sweating a lot at night, lie on a soft towel to soak up moisture and keep your sheets dry
- Drink at least 2.5 to 3 litres (preferably water) a day as you can lose a lot of fluid in sweat
- Have plenty of warm baths or showers

### **3. Positioning**

Patients with cancer report how their sleep is interrupted by being unable to find a comfortable position (Flynn et al, 2010). Often, this is related to pain, or to devices associated with their medical treatment; surgical intervention through ostomies and scars; radiotherapy-induced skin damage; or disease-related such as dyspnoea in patients with lung cancer.

Symptom management is of prime importance to enable restful sleep. Aromatherapists are well placed to optimise patient comfort through appropriate bolsting to aid positioning, as well as integrating effective clinical aromatherapy approaches. Specific formulation using fixed and infused oils, gels, essential oils and botanical hydrosols, to alleviate skin-related discomfort, has been previously reported in patients with cancer (Tavares, 2011; Knapp-Hayes, 2015). Additionally, Harris (2004) outlines an effective strategy for dyspnoea management in patients with cancer.

### **4. Restless leg syndrome (RLS)**

Hashemi et al (2015) describe RLS as a neurological disorder characterised by compulsory and often involuntary movement of the legs. This can be accompanied by intensely uncomfortable sensations including pain. Generally, RLS occurs after prolonged periods of rest with exacerbation of the symptoms at night, disturbing sleep. It is relieved by activity, but only for the duration of that action.

RLS is prevalent in the general population, in renal patients undergoing haemodialysis (Hashemi et al, 2015) and is a contributor to sleep disturbance

in patients with cancer (Flynn et al, 2010). The underlying cause remains elusive, resulting in pharmacological treatments to minimise symptoms. Hashemi et al (2015) report a growing interest in complementary therapies, demonstrating significant improvements of RLS in patients receiving haemodialysis, using aromatherapy massage with essential oil of *Lavandula angustifolia* (lavender).

RLS is a complex area which requires further investigation, particularly in the cancer population. In addition to slow-stroke effleurage techniques, practical recommendations, derived from personal experience with RLS in patients with cancer and end-stage-renal disease, would include CBT relaxation interventions and sleep hygiene recommendations (see Table 4); maintaining cool temperatures within the bedroom and alleviating the weight of bedclothes using bed-frames.

### **Evidence-based practice**

Research-based evidence for insomnia management in the cancer population is limited. And yet, the emphasis of today's healthcare calls for evidence-based practice, whereby clinical experience and patient values are integrated with the best available research findings when making decisions on individualised care (Masic et al, 2008).

Araujo et al (2017) attributes the lack of evidence to the wealth of quantitative studies which primarily focus on the severity and duration of insomnia. Additionally, Flynn et al (2011) highlights the absence of measurement tools capable of detecting

the complexity of sleep disturbance in this patient group. Arguably, quantitative research offers little information about the personal and subjective meaning of sleep disturbance for patients with cancer, because the context within which the patient experiences insomnia is lost.

Within aromatherapy, evidence to support the most effective interventions, applications and timings for insomnia management in this patient group is also limited. Aromatherapy studies investigating insomnia are consistently not meeting inclusion criteria for systematic review in the cancer population. Commonly, this is due to small sample sizes or weak methodology which makes comparison of aromatherapy intervention difficult. Sanchez-Vidana et al, (2017) attribute this to the diversity of application; duration, frequency and number of sessions; quality and appropriateness of essential oils used, together with, the variety of massage techniques involved. Furthermore, insomnia in patients with cancer is complex and multi-factorial whereby single intervention is unlikely to be effective.

Combination approaches are showing promise in reducing symptoms of depression either through aromatherapy massage with inhalation (Sanchez-Vidana et al, 2017), or in sustained effectiveness using aromatherapy massage with CBT (Serfarty et al, 2012). Clearly, further research is required which primarily investigates insomnia and uses creative approaches to address the unique experience of insomnia in patients with cancer.

## Conclusion

Insomnia is an area where aromatherapists have a wealth of anecdotal experience which can be shared with patients with cancer. If we are to seamlessly integrate aromatherapy interventions into mainstream healthcare, we need to do so through well-considered research studies which include qualitative approaches. These address the patient's perspective and align with the holistic element of our practice. Aromatherapists are well placed to work alongside researchers and advise on appropriate aromatic interventions which have the potential to change the way insomnia is managed in patients with cancer.

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