

Can Hypnosis Reduce Hot Flashes in Breast Cancer Survivors? A Literature Review

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Hot flashes are a significant problem for many breast cancer survivors and can cause discomfort, insomnia, anxiety, and decreased quality of life. In the past, the standard treatment for hot flashes has been hormone replacement therapy. However, recent research has found an increased risk of breast cancer in women receiving hormone replacement therapy. As a result, many menopausal women and breast cancer survivors reject hormone replacement therapy and many women want non-pharmacological treatment. In this critical review we assess the potential use of hypnosis in reducing the frequency and intensity of hot flashes. We conclude that hypnosis is a mind-body intervention that may be of significant benefit in treatment of hot flashes and other benefits may include reduced anxiety and improved sleep. Further, hypnosis may be a preferred treatment because of the few side-effects and the preference of many women for a non-hormonal therapy. Two case studies are included to illustrate hypnosis for hot flashes. However this intervention has not been adequately studied. We discuss an NIH-funded randomized clinical trial of hypnosis for hot flashes in breast cancer survivors that is presently being conducted.

Hot flashes are experienced by most perimenopausal and menopausal women and can cause considerable distress. Further, hot flashes are an especially significant problem for many breast cancer survivors (Carpenter, et al., 1998). In breast cancer survivors, adjuvant cytotoxic chemotherapy results in diminished ovarian function and causes hot flashes. Also, anti-hormonal agents such as tamoxifen and raloxifene that are given to prevent breast cancer are associated with hot flashes. It is recognized that chemotherapy-induced hot flashes are particularly difficult because of the sudden onset and intensity. We review the definition, impact, findings from the Women's Health Initiative, alternative interventions, and the potential use of hypnosis in treatment of

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hot flashes in breast cancer survivors. Two case illustrations of hypnosis for hot flashes are presented, and an NIH-supported clinical research trial currently underway is discussed.

Definitions

As described by Kronenberg (1994) a hot flash may be identified as “a transient episode of flushing, sweating, and a sensation of heat, often accompanied by palpitations and a feeling of anxiety, and sometimes followed by chills.” Hot flashes occur as a consequence of estrogen depletion (Ganong, 1993) which results in decreased tonic inhibitory stimuli and induction of noradrenergic hyperactivity, an activation of heat-loss responses (Bider, Masiach, Serr, & Ben-Rafael, 1989; Casper & Yen, 1985).

Many women experience an aura, which signals an impending hot flash immediately prior to its onset. The hot flash typically begins with a sudden increased heart rate and peripheral blood flow (Ginsberg, Swinhoe, & O’Reilly, 1981; Kronenberg, Cote, Linkie, Dyrenfurth, & Downey, 1984). Skin temperature rises and there is often a sudden outpouring of sweat. The sensation of a wave of heat spreads over the person’s body, especially the upper body (Kronenberg & Downey, 1987; Tataryn et al., 1980). Although there is a sensation of heat, evaporation of sweat from the forehead and chest results in a drop in temperature in these areas (Kronenberg et al., 1984). As a result the hot flash is sometimes followed by a chilled feeling.

Impact of Hot Flashes on Breast Cancer Survivors

The impact of hot flashes can be significant in breast cancer survivors. Finck, Barton, Loprinzi, Quella, and Sloan (1998) reported on 102 breast cancer survivors with hot flashes. Severe hot flashes were described by 89 of the women. Of these, 54% reported experiencing hot flashes that were like “a raging furnace” or “burning up” with heat sensations. Physical symptoms included weakness, feeling faint, rapid heartbeat, and itching sensations. Twenty-six percent of the women reported total body sensations involving their face, neck, chest back, legs, and feet. Thirty-seven percent of the women indicated that these hot flashes interrupted their daily activities and disrupted sleep. For example, one woman stated that she could no longer work in her garden because she could not tolerate being outside in the heat. The disruptions in sleep included awakenings and insomnia. Half of the women reported being awakened from sleep with severe sweating. Many reported taking cold showers, putting cold towels on their pillows, or use of ice around their necks. Emotional aspects that were reported included anxiety, “panic attacks,” and being “embarrassed in public.” Responses to moderate hot flashes included fanning, uncovering, drinking water, and opening windows. Some of the women reported feeling faint or dizzy, having heart palpitations, or having feelings of nausea.

Pansini et al. (1994) also described the many physical symptoms associated with hot flashes. The most common symptoms included headaches, irritability, palpitations, paresthesias, and dizziness. Also, Hunter and Liao (1995) found that one-third of women with hot flashes described embarrassment, and 20% described a general sense of a loss of control.

Hot flashes can significantly decrease quality of life, alter daily activities, and negatively affect sleep (Carpenter, 2001; Lamb, 1995) in breast cancer survivors. Further,

hot flashes are a very common result of breast cancer treatment with cytotoxic chemotherapy drugs or with tamoxifen. It has been demonstrated that up to 78% of female chemotherapy recipients and 72% of tamoxifen recipients experience hot flashes (Carpenter et al., 1998). Hot flashes that are chemically induced (such as from cancer therapy) can be of a more profound nature compared to hot flashes as a consequence of natural menopause (McKeon, 1993; Knobf, 1997).

Women's Health Initiative

The standard treatment of ovarian failure and hot flashes has been hormone replacement therapy. Hot flashes and associated symptoms respond quickly and dramatically to estrogen hormone replacement therapy. However a recent Women's Health Initiative study (Rossouw et al., 2002) found that estrogens are associated with increased risk of breast cancer.

The Women's Health Initiative study (Rossouw, et al., 2002) involved over 16,000 women with an intact uterus who were randomly assigned to receive either estrogen and progesterone or placebo. The study was halted early because of an increased risk of breast cancer in the group receiving hormone replacement therapy. In the Women's Health Initiative trial, the incidence of breast cancer increased by 26% for women in the hormone replacement therapy group. Furthermore, increased risks of heart disease, stroke, and blood clots were associated with hormone replacement therapy. The risk of breast cancer began to increase after two years of hormone replacement therapy and the risk of cardiovascular disease increased shortly after hormones were started. The benefits of hormone replacement therapy were found to be reductions in hip fractures and colon cancer. The conclusion reached by the Women's Health Initiative was that the long-term use of hormone replacement therapy was associated with more risks than benefits. Of note, in a more recent publication of the Women's Health Initiative trial of women with a prior hysterectomy who were randomized to estrogen or placebo, an increase in breast cancer risk was not observed. Due to a significant increase in stroke and no improvement in cardiovascular events, results of this latter study were also prematurely reported (Effects of conjugated equine estrogen in postmenopausal women with hysterectomy: The Women's Health Initiative randomized controlled trial, Anderson et al., 2004).

In another large study, designated the "Million Women Study," current users of hormone replacement therapy were more likely to develop breast cancer (adjusted relative risk 1.66 and 1.22 respectively). Risk was seen with almost all estrogen preparations, but the magnitude was significantly greater for estrogen combined with progesterone (Beral, 2003).

Therefore hormone replacement therapy is often avoided for breast cancer survivors (Loprinzi et al., 1994), many women reject estrogens (Chlebowski & McTiernan, 1999), and health care providers are reluctant to prescribe it. Indeed, the HABITS trial (Hormonal replacement therapy after breast cancer—is it safe?), in which women were randomized to hormone replacement therapy or best treatment without hormones, was recently terminated due to an increase in new breast cancer events in the hormone-treated group (Holmberg & Anderson, 2004). Because of this, alternatives to hormone replacement therapy are needed.

Alternative Interventions for Hot Flashes

At the present time there are few effective alternatives for treatment of hot flashes. Megestrol acetate has been found to decrease hot flashes (Loprinzi, et al, 1994); however there is a concern by many about placing breast cancer patients on any hormonal agent (Quella et al., 2000). Further, it does not effectively alleviate hot flashes in all patients with whom it is used and may be associated with untoward side effects in some patients (Quella et al., 1998). Therefore this intervention is not widely used with breast cancer survivors.

Because of these concerns about hormonal interventions, efforts have been made to identify non-hormonal agents for hot flashes. Studies have been conducted to investigate the use of: soy supplementation (Quella et al., 2000), vitamin E (Barton et al., 1998), and clonidine (Pandya et al., 2002; Goldberg et al., 1994). Soy does not seem to be much more effective, or only modestly more effective than placebo (Stearns & Hayes, 2002). Other alternative non-conventional remedies that have been studied in randomized clinical trials were not more effective than placebo (Kronenberg & Fugh-Berman, 2002). Other non-hormonal agents have not been found to be very efficacious and can be associated with a high toxicity profile (Stearns et al., 2002; Shanafelt, Barton, Adjei, & Loprinzi, 2002).

Based on anecdotal reports, two studies have investigated the use of antidepressant medication for hot flashes. Stearns et al. (2000) reported on the use of paroxetine hydrochloride (Paxil) and found a mean reduction of hot flashes of 67% in a pilot study with breast cancer survivors. However, adverse reactions to the treatment included somnolence and anxiety in 16% of the participants resulting in discontinuation or reduction in medication. Loprinzi et al. (1998) conducted a pilot study to investigate the use of venlafaxine hydrochloride for hot flashes in cancer survivors. Of those patients who completed the study, 58% reported a reduction in hot flashes. However, negative effects were found in some participants and included symptoms of depression, dry mouth, fatigue, sleepiness, and difficulty with concentration.

More recently, prospective randomized clinical trials have confirmed these findings. Venlafaxine reduced hot flashes by 60% compared to a 20% reduction with placebo (Loprinzi et al., 2000). Fluoxetine decreased hot flash frequency by 50% compared to 36% in placebo (Loprinzi et al., 2002). Paroxetine was studied in postmenopausal women and reduced hot flashes by up to 65% compared to a 38% reduction in a placebo group (Stearns, Beebe, Lyengar, & Dube, 2003). Kimmick suggested that sertraline was no more effective than placebo in decreasing hot flashes (Kimmick, Lovato, McQuellon, Robinson, & Muss, 2001). Given these facts it is imperative that effective new interventions be developed to help breast cancer survivors who experience hot flashes. Because most hot flashes will resolve with time, and due to the risks associated with hormonal and non-hormonal pharmacological intervention, a well-tolerated, non-hormonal treatment for hot flashes would be of great value. Based upon our clinical experience with breast cancer survivors we have identified that hypnosis may be of significant benefit in reducing the frequency and severity of hot flashes in breast cancer survivors who are receiving chemotherapy and/or tamoxifen.

The Potential Use of Hypnosis to Reduce Hot Flashes

Clinical hypnosis may be identified as a mind-body therapy that often involves a deeply relaxed state and mental imagery (Elkins & Handel, 2001; Hammond & Elkins, 1994; Woody, Bowers, & Oakman, 1992). The hypnotic state has been described variously as being an altered state of consciousness, focused attention, imaginative involvement, and role assumption. However, it is generally agreed that hypnosis is a “state or condition, which occurs when appropriate suggestions elicit distortions of perception, memory or mood” (Orne & Dinges, 1989). There have been a few studies that suggest that stress management methods (Stevenson & Delprato, 1983) or group hypnosis (Younus, Simpon, Collins, & Wang, 2003) may be helpful in managing menopausal symptoms. However there have not been any randomized clinical trials of hypnosis for hot flashes. Our clinical experience has suggested that hypnosis may be of significant benefit in reducing the frequency and severity of hot flashes by: (1) suggestions for coolness and comfort; (2) reducing the anxiety; (3) decreasing psychological stress; and (4) improving sleep in breast cancer survivors with hot flashes.

Suggestions for Coolness

Hypnosis usually involves the use of mental imagery. A hypnotic induction may include suggestions for imagining one is in a pleasant place such as walking through a garden, feeling a cool breeze, or drinking cool water. It has been demonstrated that highly hypnotized persons are able to experience an alteration in perception and report feeling and experiencing the mental imagery that is suggested (Weitzenhoffer & Hilgard, 1962). For example, hypnosis has been used with migraine patients with suggestions for peripheral (hand and foot) warming and central (head) cooling (Diamond & Friedman, 1983). Suggestions for cooling have also been used with patients suffering from sympathetic reflex dystrophy and other types of pain (Chaves, 1993). Further, hypnotic suggestions for “coolness” have been associated with a decrease in peripheral skin temperature (Peters, Lundy, & Stern, 1973). Because hot flashes are episodes of thermoregulatory dysregulation, women report that standing in front of an open refrigerator or air conditioner helps to ameliorate the discomfort (Kronenberg, 1990). Also, an increase in body temperature precedes most hot flashes (Freedman, 1998). Our clinical experience has indicated that breast cancer survivors with hot flashes are also able to utilize and benefit from mental imagery for coolness and learning self-hypnosis methods.

Suggestions to Manage Anxiety

Additionally, hypnosis involves suggestions for deep relaxation and has been found to be of significant benefit in reducing anxiety (Elkins, 1987; Wadden & Anderton, 1982). In this regard, hypnosis has been successfully used with cancer patients to induce relaxation and to reduce anxiety and distress (Gruber et al., 1993; Decker, Cline-Elsen, & Gallagher, 1992; Araoz, 1983; Burish, Snyder, & Jenkins, 1991). Several studies have suggested that hypnotic relaxation is of benefit to cancer patients for managing anxiety. For example, Gruber et al. (1993) randomly assigned breast cancer patients to receive either relaxation, guided imagery, and biofeedback training, or delayed treatment. Results showed a significant reduction in anxiety that was apparent shortly after each group began the intervention. Kraft (1990) completed a study of the possible value of hypnotic relaxation in the management of anxiety in 12 terminally ill patients with cancer. This is important because previous research has also suggested that many patients

with hot flashes experience anxiety that may contribute to symptoms (Kronenberg, 1990). Therefore it is reasonable to speculate that hypnosis may be of benefit in reducing anxiety and the onset and severity of hot flashes.

Suggestions to Control Stress

Hot flashes can occur spontaneously without any identifiable trigger. However some women do report specific precipitating factors such as hot weather, being in a confined space, spicy foods, alcohol, and caffeine (Voda, 1981; Gannon, et al., 1987; Kronenberg, 1990). Psychological stress is also often cited as a precipitant for the onset of hot flashes (Swartzman, Edelberg, & Kemmann, 1990). Research has suggested that hypnosis may be of benefit in reducing the distress in breast cancer survivors. For example, Bridge, Benson, Pietroni, and Priest (1988) completed a study to determine whether relaxation and mental imagery could reduce the levels of distress in breast cancer patients. At the end of treatment there was significantly lower total mood disturbance in the intervention groups (with the relaxation and mental imagery group reporting less disturbance than the relaxation only group) in comparison with a control group.

Suggestions for Reduced Insomnia

Hypnotic techniques also may be of significant benefit in treatment of insomnia (National Institute of Health, 1995). Hypnosis involves the use of imagery and suggestive methods to induce relaxation and imagery with features that are similar to other relaxation techniques used to improve sleep. For example, Borkovec and Fowles (1973) compared progressive muscle relaxation, hypnotic relaxation, and no treatment. Results indicated that both hypnotic relaxation and progressive muscle relaxation resulted in significant decreases in the latency of sleep onset in comparison to the no-treatment condition. More recently, Elkins (1997) described a brief hypnotic intervention for insomnia. The results indicated a high degree of compliance with practice of self-hypnosis, improved sleep, and a high degree of satisfaction with the treatment. Given that many breast cancer survivors with hot flashes experience disturbed sleep and “night sweats,” the potential use of hypnosis to reduce hot flashes through improved sleep is also rational.

Preliminary Case Studies

The following preliminary case studies illustrate the potential use of hypnosis for hot flashes.

Case One

History. Ms. D. was a 49-year-old divorced woman who was postmenopausal with invasive ductal carcinoma of the right breast. She completed a course of chemotherapy and her cancer was in remission. She was experiencing significant distress due to hot flashes and was referred by her oncologist for hypnotherapy.

At the time of consultation the patient was experiencing an average of 4 to 6 hot flashes per day. She reported the hot flashes as frequently waking her in the middle of the night “drenched in sweat.” She also reported significant interference in her activities of daily living. These disruptions included blocking of thoughts, insomnia, having to stop what she was doing, and embarrassment. Ms. D. was experiencing a great deal of distress when the hot flashes would disrupt her concentration during a work or other administrative duty.

The patient was asked to record the frequency of hot flashes on a daily basis. Also, the patient was asked to rate the severity of hot flashes on a 0-10 scale anchored as “very mild” on one end and “very severe” at the other end. The baseline period was for one week and the patient also recorded the daily frequency and severity of her hot flashes for the five weeks of hypnotherapy.

The patient was seen for five hypnotherapy sessions. At each session a hypnotic induction was completed using a transcript that included suggestions for relaxation and coolness. In addition, the patient was asked to practice self-hypnosis on a daily basis.

As shown in Figure 1, during the baseline period the patient recorded 30 hot flashes at baseline. She experienced a steady decline in the frequency of hot flashes during treatment. At the end of treatment the frequency of hot flashes was reduced to 7 hot flashes in her final recording period. Thus, the mean number of daily hot flashes was reduced from 4.3 to 1 (77% reduction).

The severity of hot flashes was also recorded daily. The patient was asked to rate the severity of her hot flashes with four descriptive adjectives (mild, moderate, severe, or very severe). As shown in Figure 2, during the baseline period she recorded 29 hot flashes as “moderate” and 1 as mild. At the end of treatment the number hot flashes were recorded as 0 moderate hot flashes 7 mild hot flashes.

Figure 1: Weekly frequency of hot flashes

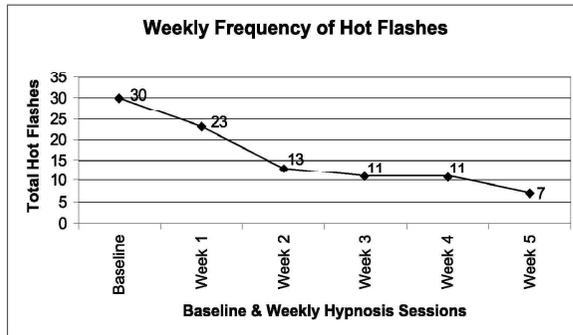
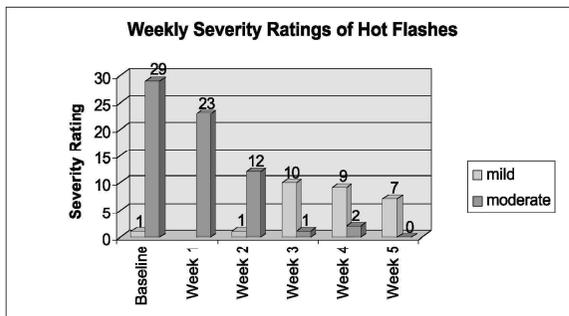


Figure 2: Weekly severity ratings of hot flashes



Also, at the end of treatment the patient reported that she was much less bothered by hot flashes. She stated that her sleep and mood had improved as well. She found that she was less bothered by hot flashes and the attendant anticipatory anxiety about when the next hot flash would occur. She reported that her feeling of well being and confidence had generalized to other areas of her life such as work and social interactions.

Case Two

History. Mrs. H. was a 62-year-old married woman who was postmenopausal with invasive ductal carcinoma. She had undergone a modified radical mastectomy and had completed her course of chemotherapy one month prior to meeting with the therapist. She was experiencing significant distress due to hot flashes and was referred by her oncologist for hypnotherapy.

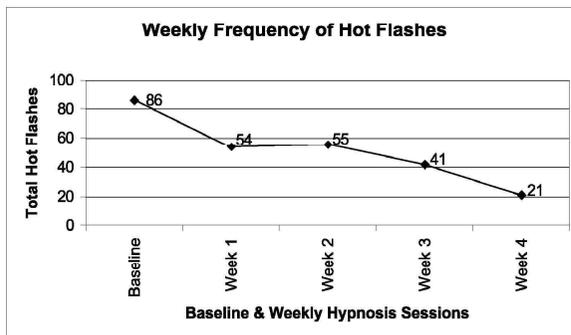
At the time of consultation the patient was experiencing an average of 12 hot flashes per day. She reported the hot flashes as frequently waking her in the middle of the night “drenched in sweat,” causing her to get out of bed, change bed clothes, and experience significant problems getting back to sleep. She also reported dramatic interference in her activities of daily living. These disruptions included blocking of thoughts, insomnia, having to stop what she was doing, and embarrassment. Ms. H. was experiencing a great deal of distress when the hot flashes would disrupt her concentration, frequently having to stop what she was doing to regroup and gain her equilibrium after a hot flash.

The patient was asked to record the frequency of hot flashes on a daily basis. Also, the patient was asked to rate the severity of hot flashes on a 0-10 scale anchored as “very mild” on one end and “very severe” at the other end. The baseline period was for one week and the patient also recorded the daily frequency and severity of her hot flashes for the five weeks of hypnotherapy.

The patient was seen for four hypnotherapy sessions. At each session a hypnotic induction was completed using a transcript that included suggestions for relaxation and coolness. In addition, the patient was asked to practice self-hypnosis on a daily basis. Mrs. H. felt that she had done so well that she discontinued treatment prior to the suggested five sessions.

As shown in Figure 3, during the baseline period the patient recorded 86 hot flashes at baseline. She experienced a steady decline in the frequency of hot flashes

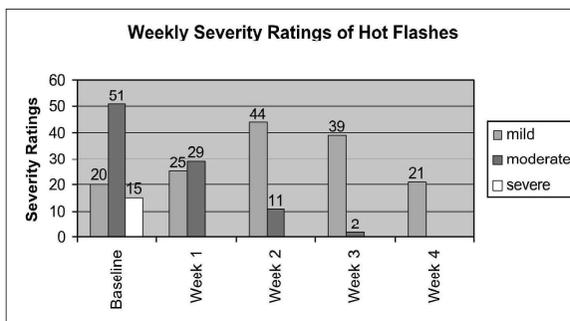
Figure 3: Weekly frequency of hot flashes



during treatment. At the end of treatment the frequency of hot flashes was reduced to 21 hot flashes in her final recording period. This woman had a reduction from 12.3 daily mean hot flashes to 3 (76% reduction).

The severity of hot flashes was also recorded daily. The patient was asked to rate the severity of her hot flashes with four descriptive adjectives (mild, moderate, severe, or very severe). As shown in Figure 4, during the baseline period she recorded 51 hot flashes as “moderate” and 20 as mild. She also recorded a total of 15 severe hot flashes during the same baseline week. At the end of treatment the number of her mild hot flashes were recorded as 21. She did not report any hot flashes in either the moderate or severe range.

Figure 4: Weekly severity ratings of hot flashes



By end of treatment the patient reported that she was much less bothered by hot flashes. She stated that her sleep and mood had improved as well. She also reported that her feeling of well being and confidence had generalized to other areas of her life such as work and social interactions. In fact, she reported such a feeling of confidence and control over her internal and external environments that she had decided to change careers.

Although these are anecdotal reports, the present research provides important preliminary data regarding this intervention. The two women had a substantial reduction in their hot flashes within a short time interval, which was more substantial than the average placebo effect. The results of these cases are encouraging and this intervention warrants further study.

Discussion and Future Research

This review reveals that hot flashes remain a very significant problem for many breast cancer survivors and that there is a need to develop new and effective interventions. Hormonal approaches are generally avoided with breast cancer survivors and non-hormonal pharmacological agents are not very effective or are associated with many side effects. A well-tolerated, non-hormonal treatment such as hypnosis for hot flashes would be of great value. Hypnosis is a mind-body intervention that is generally well tolerated and is a non-hormonal treatment that may be of significant benefit in

reducing frequency and intensity of hot flashes in breast cancer survivors. Further, hypnosis may result in improved sleep and decreased interference of hot flashes on daily activities. However, the use of hypnosis for hot flashes has not been adequately explored and the efficacy of hypnosis is, as yet, unknown. The mechanisms by which hypnosis may operate to reduce hot flashes have also not been determined.

We are currently undertaking an NIH-funded randomized clinical trial of hypnosis for hot flashes. It is expected that most breast cancer survivors will benefit from hypnosis because research has shown that most people are at least within the mid-range of hypnotizability (Fromm & Nash, 1992). We will explore the effectiveness of hypnosis for hot flashes and role of possible mediating factors such as hypnotizability and anxiety.

Based upon clinical experience and the above review, we expect to find that hypnosis does reduce hot flashes in breast cancer survivors. Clinicians providing hypnosis for hot flashes may consider using hypnotic suggestions for anxiety management, improved sleep, and imagery for coolness. Within the next year, we expect that results from our research will provide more information on the potential use of hypnosis for this difficult clinical problem.

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