

# TREATMENT BY ACUPUNCTURE AND DIETARY MODIFICATION HOT FLUSHES IN BREAST CANCER PATIENTS

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## *Summary*

Many women treated surgically for early breast cancer, who then undergo treatment with chemotherapy and/or Tamoxifen and/or ovarian ablation, may have vasomotor symptoms that usually continue for years. Hot flushes are brought out from the thermo-regulatory centre, and are possibly attributable to a decrease in hypothalamic opioid activity produced by low oestrogen concentrations. Acupuncture therapy stimulates hypothalamic opioid activity and relieves hot flushes. Twenty-two breast cancer women with vasomotor symptoms following chemotherapy and Tamoxifen, received acupuncture treatment sessions of 20-30 minutes twice weekly for 3-8 weeks, with a detoxifying healthy diet programme and changes in life style. All patients were followed up 3-5 weeks after the last acupuncture session and showed a reduction in the number of hot flushes (average 80% after the completion of treatment course). This study concludes that acupuncture, associated with a dietary programme and healthy life style may be an alternative treatment of choice in breast cancer survivor women suffering from hot flushes following chemotherapy and/or Tamoxifen and deserves further clinical appraisal.

## *Introduction*

Traditional Chinese acupuncture has stimulated great interest in western medicine for its analgesic property in the treatment of pain<sup>1, 2</sup>. It has also been used in Western medicine to treat some non-painful conditions, including vasomotor symptoms. Hot flushes are a considerable clinical problem for some patients on adjuvant or palliative treatment for breast cancer and are labeled by the medical

professions as one of the vasomotor symptoms, due to changes in circulation (cutaneous vasodilatation), body temperature, and heart rate<sup>3</sup>. The exact mechanisms causing these symptoms are unknown, but the decline in level of oestrogen concentrations has been suggested<sup>4</sup>. Since some of the oestrogen is normally present in fatty tissues, it is more likely that obese patients may develop hot flushes than thin ones due to the abrupt loss of oestrogen. A typical attack of hot flushes is characterised by a sudden rushing sensation of warmth or even intense heat that spreads over various parts of the body, especially the chest, face, and head, which may severely impair quality of life. Profuse sweating and a feeling of suffocation usually accompany these hot flushes which may be followed by chills. Low levels of oestrogen are associated with hot flushes, but not necessarily causally. Accordingly, with an abrupt loss of ovarian oestrogen due to Tamoxifen<sup>5</sup>, ovarian ablation or chemotherapy, breast cancer patients are likely to experience the worst hot flushes. Tamoxifen is a drug used for breast cancer with a mechanism for blocking the effect of oestrogen hormone in cells. This type of drug has unique characteristics as summarised in Table 1 (see over).

Recent research work on breast cancer patients investigated prevalence, severity and management of hot flushes<sup>5</sup>. This study significantly contributes to understanding the patho-physiology of hot flushes in women with breast cancer and concludes that hot flushes are more common in women with a high school education and those who were younger at diagnosis, and more severe in women with a higher body mass index as well as those receiving Tamoxifen. Despite this, clinical research on management of hot flushes

**Table 1. Characteristics of Tamoxifen**

- For adjuvant therapy of breast cancer, patients are prescribed Tamoxifen for a period of not less than five years. Others may receive the drug as palliation for as long as their cancer continues to be controlled.
- Tamoxifen is more effective in women whose tumours are oestrogen receptor (ER) positive.
- Tamoxifen may interact with other drugs such as warfarin.
- Tamoxifen is contraindicated in pregnancy.
- Tamoxifen causes a slight increase in risk of endometrial cancer and thrombosis.
- Tamoxifen protects against osteoporosis in post-menopausal women and reduces a woman's risk of heart disease.
- Although Tamoxifen rarely has serious side effects, other side effects include: temporary nausea, bone pain or swelling, weight gain, allergic reactions (these may include skin rashes and temporary thinning of the hair).

following the treatment of breast carcinoma is scarce. Hot flushes in breast cancer patients tend to be worse than in healthy postmenopausal women (Table 2).

**Table 2. Some facts on hot flushes in breast cancer patients<sup>5</sup>**

- Postmenopausal hot flushes are more severe in women who have been treated for breast cancer compared with healthy women<sup>5</sup>.
- Breast cancer patients have hot flushes attacks twice as often as healthy postmenopausal women<sup>5</sup> and for longer periods of time after menopause<sup>4</sup>.
- In breast cancer patients, 54% were still having hot flushes more than 10 years after menopause, compared with 4% to 35% of healthy postmenopausal women<sup>5</sup>.
- Women with a history of breast cancer have few options for managing hot flushes. Hormone replacement therapy alleviates the symptoms but most doctors feel that hormone treatment is risky for women who have had breast cancer<sup>6</sup>.

The main aim of this paper is to propose an approach to therapeutic guidance in acupuncture practice in which western diagnosis of hot flushes, coupled with the application of both acupuncture and dietetic principles, offers a practical solution for breast cancer patients undergoing chemotherapy and Tamoxifen treatment.

**Hot flushes: aetiology and pathophysiology**

According to Western medicine, hot flushing is a disorder of unknown aetiology with signs and symptoms treated by symptomatic methods. Breast cancer treatment by ovarian ablation, cytotoxic drugs and Tamoxifen can impact the onset of menopause and precipitate vasomotor symptoms<sup>5, 7, 8</sup> suggesting that the Tamoxifen might induce or increase hot flushes and night sweats. However, medical research scientists have developed several theories to explain the mechanism of production of hot flushes in menopausal women and among them are: hypothalamic disorder of the thermoregulatory centre<sup>9</sup>, prostaglandin stimulation of gonadotrophins through the hypothalamus<sup>10, 11</sup> and the low

level of oestrogen<sup>12</sup>. For the past two decades it has been thought that the lack of oestrogen is the principle cause of hot flushes, because when the oestrogen level falls, it influences the sympathetic nervous system, leading to dilatation of blood vessels and resultant flushing and sweating. However, if we assume that hot flushes are principally caused by lowered oestrogen levels as such, why is it that not everybody has them, and why do those who do have them, not have them consistently? This is still a research mystery. Catecholamines and opiates are also thought to influence the heat regulatory mechanism in the hypothalamus. There are also some other factors might trigger attacks of hot flushes, summarised in Table 3.

**Table 3. Factors contributing to the onset of hot flushes**

- Socio-economic factors in association with a decline of oestrogen production are related to the occurrence of hot flushes<sup>13</sup>.
- Lack of fitness and exercise is usually an important factor in breast cancer patients<sup>14</sup>.
- Unhealthy diet: there is an intimate link between diet and development of hot flushes, not only in breast cancer patients, but also in women approaching menopause<sup>15</sup>. It was found that certain types of foods may precipitate attacks of hot flushes because they contain chemical substances such as histamine (in cheese and red wine), betaphenylethylamine (in chocolate), tyramine (in pickled herrings, cheese and marmite) and nitrite (in bacon, salami and hot dogs).
- Hot flushes are significantly associated with cigarette smoking<sup>16, 17</sup>. One study showed that smoking changed the breakdown of oestrogen in the liver and subsequently lowered one form of oestrogen in the blood<sup>18</sup>.
- Other factors that may be linked to hot flushes include: over-exertion (exhaustion, over-work and failure to relax physically and/or mentally), natural changes in the environment such as the weather (very hot or very cold), hot drinks, spicy foods and alcohol<sup>13, 19, 15</sup>. One study has illustrated a relationship between increased caffeine intake and decreased free oestrogen<sup>15</sup>.

According to traditional Chinese Medicine, the clinical picture of hot flushes shows depletion of Liver yin, deficiency of Heart blood and exhaustion of Kidney yin. The deficiency of yin gives rise to excess fire and uprising of Liver yang. Hot flushes are associated with other symptoms such as depression, palpitations, insomnia and tiredness which are related to dysfunction of the Heart, Liver, Spleen and Kidney. There are two pathological mechanisms in these manifestations:

- The combined effects of deficiency of the Kidney, hyperactivity of the Liver and flare-up of Heart fire, will lead to palpitations, insomnia and dizziness. In addition, there are signs of a red tongue body and a wiry, small, rapid and weak pulse.
- An imbalance between the Spleen and Liver is manifested by emotional depression, irritability, loss of temper, an oppressive feeling in the chest and fatigue.

### **Clinical picture**

Hot flushing is an attack of acute warm or hot sensation that may or may not be coupled with a sudden reddening of the head, neck and chest, followed by profuse sweating. Without warning, hot flushes can occur at any time, day or night, and after these symptoms have resolved a feeling of cold and chill or shivering may be experienced. The flushes usually last from a few seconds to a few minutes but, in rare cases can extend for up to an hour<sup>20</sup>. A few patients have some unusual symptoms associated with hot flushes which may be felt as pressure in the head, anxiety, a tingling sensation, or nausea. Physical examination of women with hot flushes is second only to the history in gaining information about the patient's complaints, their possible genesis and treatment. The medical acupuncturist needs to know of other medical conditions, which may give a similar clinical picture to hot flushes, as there are other conditions that can produce vasomotor symptoms (Table 4).

**Table 4. Hot flushes in other diseases<sup>21</sup>**

- systemic diseases,
- carcinoid syndrome,
- systemic mast cell disease,
- phaeochromocytoma,
- medullary carcinoma of the thyroid,
- pancreatic islet-cell tumours,
- renal cell carcinoma,
- neurological flushing,
- emotional flushing,
- high fever,
- medications (e.g. diabetics and niacin),
- spinal cord injury,
- flushing reaction related to alcohol abuse and drugs,

It has been reported that mild hot flushes occur in 40% of healthy women aged 39 or more with a normal menstrual cycle<sup>22</sup>. On the other hand, the same study reported 85% of menopausal women experience hot flushes and 30% describe them as severe. In other studies, hot flushes occur in 50-70% of climacteric women, associated with palpitations, dizziness, tachycardia or sweating<sup>23, 24</sup>. The prevalence of hot flushes appears to differ by race: the incidence is higher among western women than in women from the developing countries<sup>25, 26, 27</sup>. These studies suggest that in Japan, Hong Kong, Pakistan and Mexico, 10% or less of menopausal women experience hot flushes. The low incidence in Japan has been linked to high soybean consumption, which stimulates oestrogen production.

### **Treatment of hot flushes**

For more than 35 years hormone replacement therapy (HRT) has been used to treat hot flushes. However, little attention has been paid to the treatment of hot flushes in breast cancer patients who are prescribed HRT only with caution and not usually as first-line medication. Previous

studies have shown that oestrogen is the treatment of choice in hot flushes as compared to that of non-hormonal drugs such as Clonidine, sedatives, tranquillisers, beta-blockers, veralipride, vitamin E and evening primrose oil<sup>28, 29, 30, 31</sup>. The latter showed contradictory results with lack of scientific evidence to support using primrose oil in controlling hot flushes<sup>31</sup>.

### **Acupuncture management**

Acupuncture management includes a combination of acupuncture, dietary suggestions and lifestyle recommendations.

### **Acupuncture treatment**

Western medicine typically offers hormonal and non-hormonal therapies for hot flushes but many patients simply cannot or do not wish to take these chemicals. Traditional Chinese acupuncture, one of the most holistic medical systems available today, offers these patients great help, taking into account the whole pattern of each patient's physical and mental-emotional symptoms<sup>32</sup>.

The effect of acupuncture on hot flushes may have 3 objective explanations:

- The sedative effect of acupuncture has been shown in previous research to decrease delta and theta wave activity on the electro-encephalogram<sup>42, 34</sup>. This effect is utilised for acupuncture treatment of associated symptoms in hot flushes such as insomnia and anxiety.
- The homeostatic or regulatory effect of acupuncture<sup>35</sup> is achieved by regulating the activity of the sympathetic and parasympathetic autonomic nervous system as well as the endocrine system<sup>36</sup>.
- The psychological effect of acupuncture in calming and tranquillising the patient is seen by modern research as being due to its mechanism on the mid-brain reticular formation, increasing the content of several neurotransmitters and hormones such as endorphin, serotonin and dopamine in brain tissue following acupuncture<sup>37</sup>. This should not be confused with hypnosis or auto-suggestion because the latter are very different from acupuncture in many respects<sup>38</sup>. However, a good acupuncturist can implement the physiological effect with appropriate psychological reinforcement<sup>35</sup>.

According to traditional acupuncture theory, needling specific points will increase yin water and combat fire through compensating deficiency and controlling excess in order to restore the yin/yang balance. Therefore, acupuncture treatment nourishes the yin, clears heat and quiets the spirit by nourishing the Kidney and Heart yin and Liver blood. If deficiency of Liver yin gives rise to hyperactivity of Liver yang, with ill-temper, restlessness, headache and vertigo and hot flushes, this excess will need to be reduced. The acupuncture points used for treatment of hot flushes are listed in Table 5.

**Table 5. The therapeutic effects of acupuncture points used in treatment of hot flushes.**<sup>39, 39a, 39b</sup>

<i>Taixi KID-3</i>
Nourishes Kidney yin and clears deficiency heat
<i>Shenmai BL-62</i>
Pacifies wind, calms the spirit and benefits the head and eyes
<i>Qimen LIV-14</i>
Spreads the Liver and regulates qi
<i>Shenmen HE-7</i>
Calms the spirit and regulates and tonifies the Heart
<i>Zhigou SJ-6</i>
Regulates qi and clears heat in the three jiao
<i>Sanyinjiao SP-6</i>
Tonifies the Spleen and Stomach, harmonises the Liver, tonifies the Kidneys and calms the spirit
<i>Quchi L.I.-11</i>
Clears heat
<i>Zusanli ST-36</i>
Fortifies the Spleen and resolves dampness, nourishes blood and yin, clears fire and calms the spirit
<i>Baihui DU-20</i>
Pacifies wind and subdues yang, nourishes the sea of marrow, benefits the brain and calms the spirit
<i>Hegu L.I.-4</i>
Clears heat

### **Diet, detoxification, lifestyle and other preventive measures**

*“Everyone has a doctor in him or her; we just have to help it in its work. The natural healing force within each one of us is the greatest force in getting well. Our food should be our medicine. Our medicine should be our food. But to eat when you are sick, is to feed your sickness.”*

Hippocrates, MD., 460-370 BC, Father of Western Medicine

#### **Diet (healthy diet, minerals and vitamins)**

Although diet can play a major role in maintaining a healthy endocrine system, I would never advocate, in my personal clinical experience, that healthy diet alone is sufficient in treating hot flushes unless coupled with acupuncture. Diet planning on the basis of food properties can, however, be useful to achieve its optimal therapeutic effect on hot flushes<sup>19</sup>. The quality of diet, once it has improved the patient's condition, should be maintained throughout life. In Chinese Medicine unhealthy diet, including habitual liquor consumption and voracious eating of fatty and sweet foods may create heat, phlegm and dampness. Traditional Chinese dietetics states that a diet heavily based on complex carbohydrates (starches) with very small amounts of simple carbohydrates (sugars) and fat can be nutritionally adequate<sup>40</sup>. Therefore, there is a need for a framework of healthy dietetic knowledge within which the acupuncturist can advise patients suffered from hot flushes. There are two ways in which patient's diet can trigger hot flushes:

- Excess of fat has a toxic/heating effect resulting in the production of more hot flushes. In the short term, the harmful effect of

such food items (as described below) may be very small but the cumulative action of vasomotor symptom development will be apparent when taken regularly over a long period.

- Deficiency of vitamins may be produced by eating refined foods such as white flour, white sugar and canned or frozen foods, from which much of the nutritional quality (including minerals) has been removed or lost. Regular intake of these foods may result in a bad circulation and a general lack of resistance leading to hot flushes.

Although no direct relationship between the intake of these foods and the onset of hot flushes has yet been proved, their effect in lowering general health and resistance is quite definite. Physiologically, the normal healthy body is able to neutralise and eliminate any harmful substances derived from the ingested food and usually vasomotor symptoms may not become apparent until the mechanism of eliminative functions has been disturbed.

#### **Healthy diet**

With the exception of skimmed milk, cottage cheese and low fat yoghurt, full fat milk, semi-skimmed milk and milk products such as butter, full and half-fat cheese as well as pudding, custards and blancmanges should be avoided. An alternative, soya milk can be used in moderation as a low-fat milk substitute.

Patients with hot flushes should consider eating white meat (chicken, turkey, and fish) with little red meat (beef, pork and lamb) in order to reduce the level of arachidonic acid, which might trigger an attack of hot flushes. Fish is preferable to other types of white meat as it provides a higher content of vitamins A and D and is more readily digested. Therefore, the source of protein should be mainly from beans and legumes and their by-products. Plant compounds of phytoestrogens which are classified as two main categories: isoflavones and lignans, have oestrogenic properties<sup>41</sup>.

Western physiology shows that the liver is the centre of metabolism, responsible for the breakdown and elimination of all food impurities. Once liver function is disturbed, the level of toxins in the blood rises and consequently triggers hot flushes. Because of a high content of saturated fatty acids in animal fat, and the greater difficulty to metabolise it by the liver (compared to vegetable oils which are rich in the type of unsaturated fatty-acids necessary to maintain health), patients with hot flushes should use vegetable oils, such as corn or sunflower oil. According to traditional Chinese Medicine, too much oily food will lead to accumulation of heat and dampness in the body and manifest itself as a hot clinical pattern<sup>1</sup>. Certain types of food and drinks, which might trigger hot flushes, are summarised in Table 6.

Less restriction is applied to starchy foods, and the patient should be encouraged to eat wholemeal bread, unsugared cereal, boiled and baked potatoes, beans, peas and lentils. More vegetables such as leaf and salads as well as fruit are recommended to provide soluble fibres.

**Table 6. Some types of food and drink triggering hot flushes in menopausal women**

Refined white sugar, brown sugar and sugar substitutes.  
 Foods containing sugar (cakes, biscuits, chocolates, and puddings).  
 Cheese and dairy products.  
 Red meat (pork, beef and lamb).  
 White bread.  
 Fatty food (pastry, fried food and pies), including oily dressing.  
 Some types of fruit (banana, grapes, melon and water melon).  
 Tea, coffee, gluten, yeast, caffeinated beverages.  
 Processed foods, peanuts and vinegar.

**Table 7. Some recommendations for a healthy diet for patients with hot flushes<sup>51</sup>**

- An increase in consumption of fruits (for exceptions see Table 6), vegetables and whole grains.
- Eating a plant-based diet, which is low in saturated fat and cholesterol, rather than a meat-based diet.
- White meats such as fish and chicken should be preferred over red meat.
- Decreased intake of refined foods.
- Decreased intake of alcohol with a limit of 14 units per week.
- Diet should contain: brown rice, millet, amaranth, quinoa, buckwheat and potatoes, yeast-free bread, organic fresh or frozen vegetables, fresh juice, fresh or frozen organic fruits (not canned).

**Minerals and vitamins**

Based on experimental observations, recommendation is made for consumption of more vegetables and fruits that provide some antioxidant nutrients, e.g. beta-carotene, vitamin C and vitamin E<sup>42</sup>. It has been found in animal experimental studies that vitamin B6 affects neurotransmitter metabolism and its interaction with oestrogen-receptors restores irregularity<sup>43</sup>. Calcium, zinc and magnesium are well known in their positive effect on human female hormonal balance<sup>44</sup>. Niacin is essential in the synthesis of oestrogen<sup>45</sup>.

**Detoxification programme (healthy fasting diet)**

Normal health is maintained by balancing the assimilation of nutrients and elimination of impurities. Once this balance is disturbed by the presence of hereditary weakness, or any other factors such as chemotherapy or cytotoxic drugs, various signs and symptoms can develop, including hot flushes. Accumulation of toxins can weaken vital organs, and obstruct the body's natural cleansing processes. Impaired immunity, sluggish brain function, hypersensitivity responses, digestive disturbances, bizarre drug reactions and lethargy are just some possible effects of such a build up which can lead to chronic health problems. Stored toxins may irritate or inflame the cells and tissues and can lead to hot flushes. Physiologically, the liver is the main organ of detoxification, deactivating two types of toxins, endogenous and exogenous. Endogenous toxins develop from our biochemical and cellular activities generated through normal everyday functions and are mainly caused by physi-

cal and mental stress. Exogenous toxins are derived from air pollution, alcohol, foods and chemical substances, including drugs, through breathing, ingestion or physical contact<sup>46</sup>.

Hot flushes in breast cancer patients on endocrine therapy are usually accompanied by at least 3 or more liver imbalance signs and symptoms such as: tiredness, weakness, easy fatigability, persistent headaches, lack of concentration and thick white or yellow coated tongue.

The basic principle of detoxification is that the body needs help to cleanse itself by a process of neutralisation and excretion of potentially harmful chemicals. Early Chinese natural philosophy employed methods and techniques known as "wei-sing" (the protection of life) as part of preventive medicine, including fasting<sup>47, 48</sup>, and a detoxification programme consists of essential elements of a healthy fasting diet.

**Pathophysiology, side effects and contra-indications of a healthy fasting diet**

When internal toxin levels reach a threshold during an acute or chronic disease, either "water fasting" or "juice fasting" is indicated. The effect of a healthy fasting diet starts in a slow depletion of carbohydrate stores (mostly glycogen) within 12-24 hours. As the fasting continues for 3-4 weeks, the body fat metabolism and autolysis of protein begins. During that period, an increase in the levels of plasma growth hormone and adrenocorticotropin hormones and a decrease in the insulin level are noticed.

As with any therapy, a healthy fasting diet may have some side effects such as headaches, weight loss, nutritional deficiencies, weakness, muscle cramps and postural hypotension with dizziness<sup>48</sup>. The development of these is increased with lengthy fasting (more than four days per week). Rarely, serious side effects occur with a healthy fasting diet for three days or less per week<sup>49</sup>. Certain contraindications<sup>50</sup> in using the detoxification method are summarised in Table 8.

Through 14 years experience, I have evolved a scientifically based method of fasting for elimination of impurities or "toxins". A healthy fasting diet is a useful way to detoxify, but sometimes creates difficulties, particularly when the patient works and has a family to look after, and there may be some early transient fasting symptoms such as headache (particularly during the first day or even the second) weakness, irritability, insomnia or bad dreams and dizziness. A healthy diet is usually advised prior to fasting in order to achieve a better-tolerated detoxification (especially if there is a high consumption of red meat, dairy products, refined sugars and canned food), and on non-fasting days, the patient should maintain a healthy diet to ensure good nutrition and also to help the cleansing process (Table 6, Table 7). During the first week of two-day healthy fasting diet, the body excretes toxins and the general energy level declines with exaggeration of existing signs and symptoms. It may therefore be necessary to reassure the patient

**Table 8. Contraindications of a healthy fasting diet in some conditions associated with hot flushes**

- Severely underweight patients (particularly in malnutrition).
- Eating disorders (e.g. anorexia).
- Metabolic diseases (e.g. diabetes mellitus).
- Self-applied fasting without proper medical supervision, particularly in long fasting (for more than 3 days per week).
- Mental diseases (such as the hypochondriac patient with deep emotional disorder).
- Pre- and post-operative conditions.
- Low immunity.
- Heart diseases (congestive heart failure and cardiac arrhythmia).
- Digestive disorders such as ulcerative colitis, gastric and peptic ulcers.
- Severe bronchial asthma.
- Others (such as terminal illness and epilepsy)

that the body will regain its efficiency afterwards by allowing better digestion and absorption of nutrients. By the second week of fasting the patient usually feels better and more alive.

The process of fasting is not only useful for occasional detoxification, but also assists the generation and regulation of body oestrogen. Through the following steps the detoxification can be achieved within 3-4 weeks by a healthy fasting diet for any 2 days per week:

No food or drink to be taken in that day from 7 am to 7 p.m. except:

- a variety of raw, fresh, organic fruit (preferably unpeeled apples) or fresh organic raw vegetables (preferably carrot). Fruits and vegetables are easily assimilated and require minimum digestion and metabolism, while they supply many nutrients and stimulate the body to clear its waste-products.

- unlimited water.

The fast should end after 7 p.m. by consuming:

- one hand-size, medium thickness steak of chicken or turkey or fish (grilled or steamed) with a good amount of green vegetable and 1-2 pieces of brown toast.

- water (unlimited), camomile tea or herbal tea (2-3 cups).

During the period of detoxification the patient should continue with household duties or light office work but without extra physical exertion.

### ***Lifestyle*<sup>14, 52</sup>**

#### ***Exercise***

Physical activity can increase the concentration of endogenous oestrogen which contributes to the reduction of hot flushes<sup>14</sup> and can decrease the quantity of circulating follicular stimulating hormone (FSH) and luteinising hormone (LH) with an increase in the level of endorphins during the attack of hot flushes. Recent research work on hot flushes indicates that physical exercise on a regular basis affects neurotransmitters, which regulate the central thermoregulation<sup>52, 53</sup>.

Therefore, all forms of regular exercise, for 30-45 minutes

(in 3 equal phases of 10-15 minutes) daily or at least three or four times weekly might help to prevent or lessen hot flushes. However, patients who are planning an exercise programme should have a thorough check with their general medical practitioners.

#### ***Relaxation***

As emotional and mental stresses may trigger and increase the frequency of hot flushes, relaxation is a useful tool in increasing emotional stability and in turn relieving and reducing the number of hot flush attacks<sup>54, 55</sup>. Methods of choice include acupuncture, the Alexander technique, massage, reflexology, shiatsu and yoga.

#### ***Other preventive measures***

Other useful suggestions given to patients with hot flushes are summarised in Table 9.

**Table 9. Basic ways to avoid hot flushes**

- avoid alcohol and hot drinks and drink six glasses of purified water a day.
- avoid hot showers and baths, and use a fan while applying makeup or using the hairdryer.
- dress in layers of breathable cotton and use all-cotton sheets.
- wear thin cotton or silk night-wear, and sleep with a fan overhead if possible, as well as one by the bedside (clip-on fans work well) and keep a thermos of cool water by the bedside.
- eliminate caffeine, especially afternoon caffeinated tea or coffee.
- exercise (early in the day) and use a relaxation tape before bedtime.
- purify the environment from the source of any toxic materials by removing stored or leaking chemicals, dyes, paints, solvents, glues, acids, insecticides and cleaning agents.

### ***Clinical study***

#### ***Patients and Methods***

This study involved twenty two cancer patients aged from 38-59 years. All had been diagnosed and referred by their consultant clinical oncologist for acupuncture treatment of hot flushes. With the exception of one patient, none of the rest had previously received any form of acupuncture therapy. All patients had tried various types of conventional therapy but either had temporary response or failed to achieve any improvement. The most significant problem for these patients was the severity of the hot flushes, which disturbed their social activities and sleeping pattern.

Acupuncture treatments were conducted at points selected according to standardised acupuncture formulae (see Table 5 above), traditionally used for treatment of hot flushes. The acupuncture needles were 3cm, 30 gauge solid disposable stainless steel needles. The depth to which the needles were inserted varied with the thickness of skin and subcutaneous fatty tissues at the site of the acupuncture points. The therapeutic effect was found to be at its best when the patient experienced needle sensations of heaviness or numbness propagating along a variable distance

from the needle, as described in classical acupuncture literature<sup>56</sup> and previous research work<sup>57, 58</sup>.

One course of acupuncture therapy consisted of 6-14 sessions based on two treatment sessions per week. After 4-6 sessions of treatment (each session lasted for 20-30 minutes), a good result was usually obtained. The outcome was considered to be ineffective when there was no change in a patient's clinical picture after 8 sessions of treatment. In addition, patients were asked to follow a healthy fasting diet.

#### **The assessment and curative criteria**

The number and frequency of hot flushes episodes (day and night) were recorded daily on the patient's diary card. For each patient we noted the changes in daytime and night time hot flushes between the first and last visit, and at the 3-5 week follow up visit. The responses of patients to acupuncture and diet were classified as follows:

*Effectively cured:* the subjective signs and symptoms disappeared completely following the treatment with no recurrence at the 3-5 weeks follow up visit.

*Significant effect:* the subjective signs and symptoms improved remarkably, with very few mild attacks of hot flushes, each lasting for a few seconds.

*Some effect:* the subjective signs and symptoms were largely alleviated, but the patient may still have frequent attacks of hot flushes, each lasting for 1-4 minutes.

*No change:* the patient's subjective signs and symptoms remain unchanged and each hot flush may last longer than 4 minutes.

#### **Results**

22 patients with hot flushes were treated by acupuncture from 1995 to 1999. The mean age was 50 years, with a range of 38 to 59 years. With regard to their occupation, seven were academics, 4 clerical workers, 5 civil servants and 6 retired. Among the 22 patients, 11 had hot flushes for up to 10 months duration, 8 for 11 to 19 months and 3 for 20 to 26 months. Half of the patients involve in this study received 2-8 acupuncture sessions and the rest had 9-14 sessions.

In all 22 patients, on the first visit the total numbers of hot flushes was 315 during the day compared to 153 during the night. These hot flushes were reduced on the last visit during the day and during the night to 31 and 19 respectively and maintained at 33 during the day and 26 during the night on the follow-up visit.

The differences in hot flushes frequency for day and night are highly significant ( $p < 0.001$ ) between the first and last visit as well as between the first visit and follow-up visit. The only exception was for the moderate night hot flushes between first and follow-up visits for which  $p = 0.12$ . There was no correlation between the duration of hot flushes and the response to the management by acupuncture, diet and detoxification programme. Results indicate that 7 (32%) of all patients experienced a disappearance of hot flushes, 11 (50%) of them still had had a few hot flushes, whilst only 4 (18%) continued to experience a moderate number of hot flushes.

#### **Discussion**

Although there is no clearly defined treatment modality for breast cancer patients experiencing hot flushes in which oestrogen replacement is used with caution<sup>6</sup>, alternatives are now available. Acupuncture is known to stimulate neuropeptide synthesis which control body functions such as cardiovascular physiology and hormonal secretions<sup>59</sup>. Wyon and colleagues<sup>32</sup> have carried out a scientific clinical research on twenty-four healthy women with natural menopause, suffering from hot flushes. These women were randomly assigned to two groups, one group received treatment with electro-acupuncture (EA), the other with superficial needle position (SNP) acupuncture. The results showed that the frequency of flushes decreased significantly by more than 50 per cent in both groups, and remained decreased in the EA group, whereas in the SNP group it increased slightly again over the three months after treatment.

Diet also plays an important role in preventing hot flushes, particularly when it is combined with acupuncture treatment. Many types of foods, such as soya containing considerable amounts of different phytoestrogens, are particularly good for alleviating hot flushes in menopausal women<sup>60</sup>. Recent double blind, randomised placebo-controlled trials on the effect of soy protein, which contains potent phytoestrogens (isoflavones), on hot flushes showed that a daily supplement of soy protein to the diet substantially reduced the frequency of hot flushes in climacteric women<sup>60, 61, 62</sup>. It has been reported that phytoestrogens, which are abundant in soya beans, fennel, celery, parsley, clover sprouts, linseed oil, nuts and seeds, have no such side effects as synthetic oestrogen (e.g. gall bladder disease and thromboembolic disease - stroke and heart attacks)<sup>63</sup>. Women in Japan, who use soya as an important dietary component, have infrequent vasomotor symptoms compared to those in America and Finland who consume relatively little soy<sup>64</sup>.

A healthy diet and detoxification (fasting) work hand-in-hand with acupuncture to a) reduce bioaccumulation, b) eliminate toxic waste products (bio-transformed metabolites) through the skin, kidneys, liver, lungs and lymphatic system, and c) enhance homeostasis by their balancing, harmonising and normalising effects.

Analysis of our results indicates that absence of complications in the acupuncture method of treatment and the associated simplicity of the diet and detoxification programme are indicative of high efficacy for management of hot flushes in breast cancer patients.

From the total number of 22 patients, 80% experienced substantial relief from hot flushes, ranging from no to few attacks. No correlations have been found in response to acupuncture treatment with regard to duration of hot flushes, age or occupation.

For all patients in this study, their hot flushes were reduced after the completion of acupuncture, with highly significant differences in frequency between the first and last visit as well as between the first visit and follow-up visit

for both day and night ( $p < 0.001$ ). However, only one exception is reported for the moderate night hot flushes between first and follow-up visits for which  $p = 0.12$ . This exception may well be a small population artefact.

### Case examples

#### Case 1

This 45-year-old University lecturer had been on various therapies for 8 months because of problematic hot flushes which developed soon after she had begun taking Tamoxifen following surgical removal of a cancerous breast. Despite the use of these therapies, she was still experiencing some moderate to severe hot flushes and was therefore referred by her clinical oncologist for a trial use of acupuncture to see if her symptoms might subside. After 8 acupuncture sessions plus detoxification programme, she experienced a significant reduction in the number of hot flushes with a dramatic improvement in her energy, outlook and level of vitality.

#### Case 2

A 38-year-old, civil servant with a two months history of significant hot flushes had been on Tamoxifen following surgical treatment of her breast cancer. However, despite conventional therapies she continued to suffer from these hot flushes with other symptoms of diminished energy, lethargy and lack of concentration. After a consultation with her clinical oncologist he suggested acupuncture treatment for her hot flushes. She received acupuncture in addition to the detoxification programme as part of her treatment protocol to achieve optimal clearance of her hot flushes. After 12 sessions of acupuncture she felt dramatically better with an absolute disappearance of the hot flushes along with increased energy and well-being.

### Conclusion

Hot flushes are a significant problem for breast cancer patients who have chemotherapy and Tamoxifen treatment, particularly when they disrupt their sleep at night, leading to daily fatigue and irritability. Until recently, although most research into the problems of vasomotor symptoms has been directed to the cause<sup>5,6</sup>, our knowledge about aetiology is far from complete. However, it is known that in some postmenopausal women, hot flushes are associated with thermoregulatory, cardiovascular, and endocrine changes<sup>4</sup>.

On the basis of this pilot study's results on 22 breast cancer patients with hot flushes as well as the lack of evidence supporting the use of hormonal and non-hormonal drugs, we suggest that a management of using combination of acupuncture plus a diet control with a detoxification programme and changes in life style is a proper alternative choice of treatment in hot flushes.

More scientific clinical research in understanding the thermoregulatory, cardiovascular, and psychophysiology of patients with hot flushes is needed to facilitate the prediction of who among the breast cancer patients treated

with chemotherapy and Tamoxifen, is most likely to be affected and the recognition of the correct approaches to the management (including acupuncture) of hot flushes.

Although this study does not provide a definite result and clear statistical evidence, in relation to acupuncture therapy for hot flushes it has raised some vital questions and the need for a double blind study to achieve optimal management.

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Hot flashes are common side effects for cancer patients, especially women, but they also impact some men, according to the NCI. The institute estimates that hot flashes impact about two out of three postmenopausal women who have had breast cancer, and 44 percent of them also experience night sweats. How may integrative care help? Personalized integrative care plans may help, but each must be designed specifically for the individual involved, because some supportive therapies may not be appropriate for patients with hormone-related cancers. The supportive care services that may be recommended i Hot flushes are also a side effect of tamoxifen and aromatase inhibitors. Quality of life in breast cancer patients may be negatively influenced by hot flashes, and therefore, adequate treatment is important. Currently, of the several non-hormonal options, the selective serotonin-reuptake inhibitor (SSRI) venlafaxine is the most effective in breast cancer patients. However, studies on interaction between SSRIs and tamoxifen may influence future recommendations. Number of patients in the conventional-dose and the high-dose treatment group that returned the HRQoL questionnaire during treatment a Most women have hot flushes after breast cancer treatment because the treatment can lower sex hormone production. Research suggests that if you had hot flushes during your menopause you are more likely to have hot flushes as a side effect when you take tamoxifen as a breast cancer treatment. Tamoxifen is a type of hormone therapy. The number of hot flushes you have and their severity is about the same with tamoxifen when compared with women going through a natural menopause.Â

Acupuncture for treating hot flashes in breast cancer patients: a systematic review MS Lee and others Breast Cancer Research and Treatment; 115:497, 2009. Soy Food Intake and Breast Cancer Survival XO Shu and others JAMA; Volume 302, Issue 22, Pages 2437-2443, 2009. @article{Mom2006HotFI, title={Hot flushes in breast cancer patients.}, author={C. Mom and C. Buijs and P. Willemse and M. J. Mourits and E. D. de Vries}, journal={Critical reviews in oncology/hematology}, year={2006}, volume={57 1}, pages={. 63-77 } }. C. Mom, C. Buijs, +2 authors E. D. de Vries. Published 2006. Medicine. Critical reviews in oncology/hematology. OBJECTIVES A literature search was conducted to gather information concerning the pathophysiologic mechanisms leading to hot flushes, their prevalence and severity in breast cancer patients, their influence on quality of life, and the