

# Complementary Medicine (CM) for cancer pain control

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## Introduction

Complementary medicine (CM) is increasingly commonly accessed by the general public and cancer patients are no exception. One international review of 26 surveys found that use varied from 7% to 64%, with an average of about 30% [1]. A more recent systematic review by Less et al. [2], comprising more than 17,000 cancer patients in Europe, showed a range of prevalence of 9–78%. The use in a paediatric population is 50–84% [3,4]. Patients who access CM tend to be younger, are more likely to be female and tend to come from a higher socio-economic group than those who make no use of CM [5]. There is sometimes a little confusion over the terminology of complementary, integrated and alternative therapies and so they are defined below:

- Complementary therapies are those therapies which do not offer a true alternative to conventional cancer treatment, but are intended to provide a range of psychological, emotional and spiritual support and to help with symptom control. Massage therapy is a good example of complementary therapy. In the UK, complementary therapies are currently widely provided within the National Health Service and are used alongside orthodox health care.
- Some of these more integrated therapies have a respectable evidence base, such as acupuncture, with many positive systematic reviews for pain and symptom control, and are provided in the majority of pain clinics in the UK and are also widely available in general practice/family practice.
- Alternative therapies are treatments which offer a distinct alternative to orthodox cancer treatments and have a slim or non-existent evidence base to support their efficacy. Only a small minority of patients seek these therapies as a complete alternative to standard oncological therapy.

The high percentage of patients seeking CM reflects in a clear way the significant unmet need in cancer patients both for physical and psychological support. Fortunately, most patients access CM for pain and symptom control alongside conventional treatment and

following an orthodox diagnosis either at diagnosis, when disease progresses or in advanced cancer. Whilst in the past there was often frank antagonism towards CM from members of the medical, nursing and allied professions, these attitudes are changing to productive co-existence [6,7]. In a survey of 141 health-care professionals from two cancer centres in Ontario Canada, who were asked to identify which non-pharmacological strategies for cancer pain they would like to learn more about [8], the five of greatest interest were:

- Acupuncture or acupressure
- Massage therapy
- Hypnosis or self-hypnosis
- Therapeutic touch (healing/spiritual healing)
- Biofeedback

A brief overview of the role of a number of the following treatments for pain control will be presented:

- Acupuncture
- Herbal medicine
- Homeopathy
- Hypnosis/relaxation/visualisation
- Massage and aromatherapy
- Therapeutic touch or healing

## Acupuncture

Acupuncture is a treatment which involves the insertion of fine needles into specific chosen points to alleviate pain and other symptoms. It is used in non-cancer patients for a wide variety of conditions such as migraine, non-malignant low back pain, or osteoarthritis etc. However, it is increasingly used for pain and symptom control in cancer patients. The increase in interest in acupuncture over the last 30 years is partly due to some degree of disillusionment with drug therapy and its high incidence of side effects. There is now considerable solid neurophysiologic evidence for its modes of action as well as for clinical effectiveness and efficacy.

There are many methods of treatment with acupuncture as outlined below:

- Traditional Chinese acupuncture involves manual stimulation of the needles to elicit ‘De Qi’, a strange sensation of heaviness and numbness. A complex alternative energetic diagnostic system is used to ‘normalise’ the circulation of Qi or ‘vital energy’ in special meridians or channels and to harmonise ‘Yin’ and ‘Yang’ forces of opposite polarities within the body. The theories predate knowledge about the circulation of blood, oxygenation, homeostasis and autonomic function. Needles are usually retained for about 20 minutes [9]. Moxibustion, a thermal stimulation from burning the pith of *Artemisia*, a special herb, may be used in addition.
- Medical Acupuncture, or Western Medical Acupuncture, refers to acupuncture treatment following orthodox diagnosis using point selection based on scientific neurophysiologically based principles i.e. segmental acupuncture points’ paravertebrally or peripherally appropriate to the anatomical level of dysfunction. Painful trigger points and traditional points with the greatest evidence base to support them are also chosen. The strength of the ‘dose’ of acupuncture and duration of needling are somewhat variable and depend to a certain extent on the condition being treated.
- Electroacupuncture at low frequency (2–4 Hz) or high frequency (50–100 Hz) are used for pain relief and for acupuncture analgesia during surgery [10].
- Laser therapy (using low-power, non-thermal laser) does not involve needling, but can be used at acupuncture points with the aim of reducing pain and enhancing tissue healing [11].
- Auriculoacupuncture, or ear acupuncture, involves needling the richly innervated pinna for a variety of painful and non-painful conditions. Some have claimed that the body is represented as an inverted homunculus on the pinna [12], but this has not yet been rigorously established. Other ‘micro-systems’ have been described, such as scalp acupuncture [13] and any benefit from needling these areas may be more likely linked to their rich innervation than any somatotopic representation as body areas.
- Ryodoraku is a Japanese form of acupuncture in which skin impedance is measured. Disease states are believed to be associated with areas of reduced skin impedance and can be improved by appropriate electrical stimulation [14].
- Acupressure involves pressure on traditional acupuncture points and is undoubtedly a weaker form of stimulation than needle acupuncture with shorter-lived relief than with needling techniques.

A typical course of treatment for cancer and non-cancer chronic pain would be once weekly for six weeks, or twice weekly for three weeks, with further ‘top ups’ at increasing intervals as necessary. For treating cancer pain, a gentle approach is necessary with a low ‘dose’ given at the first treatment and the subsequent ‘doses’ should be individually modified depending on the patient’s response. If there is no pain relief whatsoever after three treatments it is probably better to review the patient, though six-plus treatments have been found to be most helpful for chronic non-cancer pain [15].

Acupuncture has an increasingly strong evidence base for painful conditions with positive systematic reviews or meta-analyses for: experimental pain [16], dental pain [17], fibromyalgia [18], osteoarthritis of the knee [19], headache [20], epicondylitis [21], back pain [22], and also for nausea and vomiting [23–26]. Acupuncture can help acute postoperative pain and speedy recovery in cancer subjects e.g. following major abdominal surgery [27] and gastrointestinal surgery [28]. For chronic cancer pain, the majority of papers are observational, with Mann as early as 1973 describing short-lived pain relief in eight patients with intractable cancer pain [29]. In Hong Kong, Wen [30] described using several electroacupuncture sessions daily for terminal cancer patients, gradually reducing the number of sessions when pain control was established. This treatment was successful in treating pain in patients whose pain failed to respond to opioids or who had both pain and opioid toxicity. Filshie and colleagues summarized two audits of the use of acupuncture for pain control in a heterogeneous cancer population whose pain had not responded to conventional pharmacological approaches [31,32]. In the two case series, 339 patients were given a course of at least three weekly treatments of manual acupuncture. Between 52% and 56% of patients had worthwhile long-lasting relief after the first three weekly sessions, although subsequent ‘top ups’ were necessary. The interval between treatments was then increased progressively. Treatment-related pain, e.g. post-surgical and irradiation, showed more prolonged analgesia than that due to metastatic disease. A further 21–30% had only short-lived analgesia of up to two days and may have benefited from more frequent treatments per week. The remainder did not experience significant pain relief. It was noted that the greater the tumour load or burden, the shorter acting the relief. Patients who developed a new metastasis often changed from longer-lasting to shorter-lived pain relief than they had previously enjoyed with acupuncture. Once the metastasis had been treated, the patients

often returned to being acupuncture-responsive again. Muscle spasm was particularly helped by acupuncture treatment and mobility often increased substantially early on in the treatment schedule. In a further audit of pain treatment for breast cancer patients with pain associated with surgery, radiotherapy or tumour in the chest, axilla and arm, which included detailed psychological questionnaires, statistically significant reductions were seen in average pain, worst pain, interference with lifestyle, distress, pain behaviour and depression after only one month of treatment [33].

Aung [34] and Leng [35] in further pain audits showed relief following acupuncture treatment. Dillon and Lucas [36] and Alimi et al. [37] have also shown ear acupuncture to be helpful for cancer pain relief, firstly in audits and secondly in a randomised controlled trial (RCT) using ear acupuncture or auriculoacupuncture. Alimi et al. again showed a reduction in mean pain intensity at two months in the 'true' acupuncture group compared with control groups (one non-point needling and one non-invasive,  $p < 0.001$ ). Decreases in pain intensity correlated with a reduction in the average electrical potential difference at auricular points [38].

The problem of maintaining the pain-relieving effects of acupuncture in late stage disease has been partly overcome by the use of semi-permanent indwelling acupuncture needles inserted into either tender areas in the ear, or on the upper sternum for advanced cancer-related dyspnoea [39], or the leg for hot flushes due to anticancer treatment [40,41].

### *Mechanisms of action*

The neurophysiology of acupuncture is summarised below:

- Most acupuncture points are richly innervated [42].
- Local anaesthetic injections prior to acupuncture prevent the effect of needling [43,44].
- Acupuncture analgesia depends largely on A $\delta$  nerve fibre stimulation [45].
- Acupuncture releases  $\beta$ -endorphins, enkephalins and dynorphins which act to varying degrees on mu, delta and kappa receptors. Multiple lines of evidence have been advanced to support the opioidergic theory of acupuncture analgesia [46].
- There is increasing evidence that changes in expression of analgesic genes may contribute to the sustained effects of acupuncture [47].
- Cholecystokinin is released by acupuncture and is an endogenous antagonistic to endogenous opioids [48]. The increase in both endogenous opioids and

antioipoids may in part explain the phenomenon of tolerance to acupuncture.

- Acupuncture also acts by diffuse noxious inhibitory control [49].
- Serotonin is released by acupuncture and causes analgesia and mood elevation [50].
- Oxytocin is released by acupuncture and is analgesic and anxiolytic [51].
- Myofascial trigger points often overlap with acupuncture points [52], and treatment by dry needling is used for many myofascial pain syndromes [53–55].
- Acupuncture releases ACTH [56] and therefore has the potential to reduce inflammation.
- Acupuncture has widespread autonomic effects on blood flow, blood pressure and gastric motility [57, 58].
- No cohesive explanation for the meridian theory is yet available. However, the referral patterns from trigger points are similar to traditional Chinese meridians e.g. the gall bladder meridian [59]. Rapid conduction of electrical signals via liquid crystal formation of collagen fibres which bypass central nervous system processing has been hypothesised but not formally tested [60].

### *Complications and contraindications*

Side effects of acupuncture have been classified as follows [61]:

- Delayed or missed diagnosis
- Deterioration of disorder under treatment
- Pain
- Vegetative reactions including syncope and drowsiness
- Bacterial and viral infections (only single use disposable needles should be used)
- Trauma e.g. pneumothorax (good knowledge of anatomy is essential and particular care is necessary in cachectic patients)
- Miscellaneous; including retained needle

Severe adverse effects are rare in prospective studies on 32,000 and 34,000 patients [62,63]. In cancer patients, acupuncture should be avoided in any area of spinal instability, as it risks removal of any protective muscle spasm and exposes the patient to the potential risk of cord compression or transection. It should also be avoided in lymphoedematous limbs or limbs at risk of lymphoedema e.g. post axillary sampling or dissection. Severely disordered clotting function is a further contraindication. Electroacupuncture should not be used in patients with a demand pacemaker.

It is not safe to use acupuncture without a reasonably good knowledge about the current clinical

stage of the patient's cancer and the current status of orthodox treatment and the history of the presenting cancer. Acupuncture has an increasing evidence base for treatment of non-pain symptoms such as advanced cancer-related dyspnoea [39], xerostomia [64,65] and nausea and vomiting [23–26]. Acupuncture is now successfully integrated into conventional treatment and its evidence base for cancer patients is slowly accumulating.

### Homeopathy

Samuel Hahnemann, a German physician, first described the homeopathic method of treatment in 1790. The practice of homeopathy (homeo = similar, pathos = illness) rests on two fundamental principles: the first being 'similia similibus curentur' or 'let like be cured with like' in which the toxic symptoms of a substance are carefully recorded and that substance is then chosen as a remedy for patients who present with those symptoms (the remedies are derived from plant, animal and mineral sources); the second principle stated by Hahnemann was that repeated dilution of the remedy, with vigorous shaking or 'succussion', increased its power of action, a process called 'potentisation'. Extreme dilutions may be used in which no molecules are thought to remain. Claims that diluting the material in this way can increase its strength seem to appear biologically implausible and yet a meta-analysis by Linde et al. (1997) [66] on all trials of homeopathy found an overall positive result. Linde et al. found no RCTs using homeopathy for cancer pain, but its analgesic effect may be worth exploring since homeopathy was found to be effective for the pain of rheumatic diseases in 4 out of the 7 studies that were included. Homeopathy has been shown to help pain of mucositis in children undergoing bone marrow transplantation in an RCT that compared the homeopathic medication Traumeel® S to placebo [67]. Mucositis is a particularly troublesome symptom, especially following chemotherapy and total body irradiation. Another RCT on homeopathy for skin reactions during radiotherapy for breast cancer showed an advantage over placebo [68]. Various observational studies have shown homeopathy to help psychological distress [69] and pain [70]. High levels of patient satisfaction are shown by patients given the homeopathic treatments [71] and often a reduction in conventional medication and improvement in well being.

Though side effects are rare some patients may experience an aggravation of symptoms, which can be stopped by dose reduction or change in treatment. In

general, it is a safe form of treatment and is worthy of further clinical research.

### Herbal medicine (phytotherapy), vitamins and food supplements

Herbs are part of traditional medicine in most cultures throughout the world and a variety of herbal, mineral and animal products, and combinations, are frequently promoted for use in cancer. Numerous conventional drugs have come into production via this route. Aspirin, which comes from the bark of the willow, is one such important example. Some have been shown *in vitro* to have anti-tumour effects such as cytotoxicity and immunostimulation, and have been reviewed [72].

Cannabinoids have been used for a variety of symptoms in cancer patients, including pain [73,74]. Some cannabinoids, derived from the plant/herb cannabis, have been widely tested for control of chemotherapy-induced nausea and vomiting [75]. Whilst slightly superior to some conventional anti-emetics, such as metoclopramide, the cannabinoids have widespread effects on mood, some of which caused patients to withdraw from treatment. This systematic review did not include smoked cannabis.

Though herbal products such as *Essaic*, shark's cartilage and Chinese herbal preparations are often used, some have been spectacularly exposed for unrealistic claims and cancer 'cures' e.g. *Di Bella* multi-therapy [76].

One of the most widely promoted herbs for cancer is mistletoe (commonly given as the preparation *Iscador*®), which was proposed by Rudolph Steiner, the founder of anthroposophical medicine. It contains several active chemicals, some of which have immunostimulating properties [77]. A systematic review of controlled trials of mistletoe found considerable methodological shortcomings in the 11 studies that were identified [78]. Methodological problems such as adequacy of blinding of the procedure are also problematic since mistletoe is given as a series of subcutaneous injections which produce strong local reactions. Overall, all but one study showed prolonged survival; the effect on pain was not considered in this review. The reviewers concluded that the evidence for an effect of mistletoe was still anecdotal.

*Essaic*, a combination of burdock root, Indian rhubarb, sheep sorrel and the inner bark of slippery elm, is well known in North America and claims to be effective in strengthening the immune system, improving appetite and relieving pain, as well as

reducing tumour size and prolonging life in many types of cancer [79]. A review of evidence by the Task Force of the Canadian Breast Cancer Research Initiative found no controlled trials and concluded that there was “some weak evidence of its effectiveness and [Essaic is] ... unlikely to cause serious side effects when used as directed” [79].

Chinese herbs are usually prescribed according to a complex traditional diagnosis. Li et al. (1994) [80] reported a controlled study in which a mixture of Chinese herbs appeared to give relief of acute pain following abdominal surgery for liver cancer. However the numbers were small and details of the methods are sparse, so no firm conclusions can be drawn.

Details are also emerging about the interaction of herbs with orthodox medicine [81]; much remains unknown and the quality assurance is often variable in herbal products and dependent on growing conditions, quality of water and irrigation or soil. In view of the number and potency of the chemicals in plants, including those from which many current drug preparations are derived, it is hardly surprising that the side effects of herbs can be common [72]. Some commonly used herbal preparations may interfere adversely with the bioavailability of antiviral and chemotherapy agents and can adversely affect clotting function (National Medicines Database – [www.naturaldatabase.com](http://www.naturaldatabase.com)). High dose vitamins have not shown a curative or life prolonging effect [82] and do not necessarily improve overall survival in patients with lung cancer [83]. Herbs may also interact with orthodox medication [84]. For example, patients may self-administer herbal Chinese products or take herbs/food supplements in order to reduce the side-effects of conventional hormone therapy for cancer: but if the herbs or phytoestrogens compete with oestrogen receptor blocking drugs, then they are possibly likely to also reduce the effectiveness of the treatment. Medical staff should be alert to the possibility that patients are using herbs or supplements which may interact with conventional medication and should routinely ask about their use. The safest advice is to warn patients not to take anything other than one multivitamin tablet a day while they are having active chemotherapy/hormone manipulation or radiotherapy until more clinical trials are available with anymore specific advice.

## Hypnosis

Hypnosis is an altered state of consciousness which provides greater access to unconscious processes and

a change in memory or perception. Spiegel and Moore (1997) [85] have defined it as ‘a natural state of aroused, attentive local concentration coupled with a relative suspension of peripheral awareness’ with three main components: absorption, dissociation and suggestibility. Hypnotisability appears to be a stable and measurable state [86,87], with approximately two thirds of the normal adult population hypnotizable and up to 10% highly responsive.

When Hilgard and Hilgard (1975) [86] reviewed the literature on hypnosis for cancer pain, they suggested that researchers should:

- Measure hypnotic responsiveness prior to treatment.
- Carefully delineate and define, indications and therapeutics.
- Use more objective outcomes.

However, an indirect method of inducing hypnosis with a gentle, permissive and less power implicit technique can be successful even in cancer patients with low susceptibility [88,89].

A distinguished panel of experts who assessed the efficacy of behavioural and relaxation approaches for the treatment of both chronic pain and insomnia concluded that there was strong evidence for the use of hypnosis in alleviating cancer pain and also for the use of relaxation techniques in reducing chronic pain [90].

Probably the best evidence to date of long-term efficacy of hypnosis for cancer pain is from Spiegel and Bloom (1983) [91]. Thirty-four women with metastatic breast cancer obtained a significant reduction in pain and suffering with hypnosis compared with the control group. Additionally, long-term follow-up showed that the treatment group lived on average another 36 months, compared with 18 months for the control group [92]. However, part of the success was undoubtedly the skilful psychotherapy involved in the ‘supportive expressive group therapy’, given by Spiegel and Moore, in addition to the hypnosis [85]. Since that time few have been able to replicate these results [93], yet as depression was found to reduce longevity by Watson et al. [94], any treatment that attempts to reduce psychological distress in cancer patients should be a priority. One meta-analysis showed that hypnosis can help acute postoperative pain [95] and mucositis pain [96]. Liossi and White [97] showed enhanced quality of life in patients with advanced cancer treated by hypnosis.

## Side effects

A skilful hypnotherapist should be able to manage an unpleasant cathartic experience, as this can be

particularly distressing if it occurs during therapy. One retrospective survey [98] of the use of hypnosis for relaxation and coping in 52 palliative care patients found that 61% (49) were able to cope better with their illness, whereas 7% (3) experienced the following negative effects: one of the three patients reported coping was 'more difficult'; one found the hypnotherapy an 'emotionally and physically disturbing experience'; and one found it an 'adverse experience'.

Hypnotherapy has a positive role in treatment of pain and treatment related pain such as procedure related pain in paediatrics [99] in cancer patients and merits further clinical trials. The success of hypnosis may depend on the skills of the therapist and their interaction with the patient more than in many other treatments.

### **Relaxation, distraction and visualization**

Relaxation and visualization are other common 'mind-body' approaches used in cancer patients. They are viewed by patients with less suspicion than hypnosis, but are in some way on the same continuum [100]. Distraction is used by almost every patient in some form, whether it is mediated through work interest, relationships or leisure activities such as walking or television. Music is selected more commonly than comedy, for example, by cancer patients as a distraction [101]. Children who are encouraged by their families to use their imagination have a greater ability to obtain help by magic and fantasy than those brought up to use intellect and reason, although the latter may respond better to a combination of relaxation and instruction [102]. Kuttner et al. (1988) [103] compared three forms of treatment on children undergoing the painful intervention of bone marrow aspiration. Imaginative involvement was more helpful for the three- to six-year old children, whereas both distraction and imaginative involvement were helpful in the seven- to ten-year olds. Coping skills needed to be repeatedly learned over one or more sessions for the distraction group.

Claims that visualization using guided imagery, such as imagining white blood cells killing cancer cells, popularized by Simonton et al. (1978) [104], have so far not been backed up by any convincing evidence. While seemingly benign, any subsequent failure to control the disease might add unnecessarily to a patient's burden of unwarranted guilt [85]. The role of psychoneuroimmunomodulation for these psychological techniques remains largely speculative [105].

### **Massage and aromatherapy**

Massage offers a touch therapy that conveys strong psychological messages of caring, comfort and support to patients who are stressed and vulnerable. It is widely available in hospices and palliative care units [106]. Massage (also known as Swedish massage) includes techniques from slow, gentle stroking to more vigorous movements such as friction, kneading/rolling movements and flicking/clapping movements. Shiatsu massage is a much more forceful form of treatment, which aims to 'release blocked energy' by strong, sustained pressure at specific points. It is quite vigorous and not commonly used for cancer patients.

Massage is used for psychological benefits such as relaxation to alleviate anxiety and help pain control [107,108] and can also relieve muscle spasm, improve circulation and reduce the swelling of lymphoedema, if performed by lymphoedema clinical nurse specialists [109].

Aromatherapy is massage with a variety of essential oils as therapeutic agents, usually by mixing a selection of oils with almond carrier oil. The oils can also be given by inhalation either by a vaporiser or when bathing. The oils are specifically chosen for each individual patient's symptoms and personality [110].

Sims (1986) [111] showed a reduction in symptom distress (not directly measuring pain) in 6 breast cancer patients who were given a simple 10 minute back massage. Ferrell-Torry and Glick (1993) [107] demonstrated that massage, particularly trigger point massage, and given on two consecutive days, could lead to short-term pain reduction, and reduction of anxiety in nine patients, with an accompanying reduction in heart rate, blood pressure and respiratory rate. An overall benefit of aromatherapy was shown by Kite et al. (1998) [110] in an uncontrolled study in cancer patients. Eleven out of the 16 patients experienced significant improvement in pain and there was a significant fall in anxiety and depression (measured with the HAD scale). Cawley (1997) [112] reviewed 14 research studies evaluating massage and makes useful recommendations for future investigations of this therapy. Possible adverse effects of the essential oils include skin reactions.

One large observational study showed a reduction in symptoms of over 50% with Swedish massage, and light touch massage being superior to foot massage. Outpatients also fared better than inpatients [113]. A recent systematic review has shown that massage and aromatherapy massage confer short-term benefits on psychological well-being, with the effect on anxiety supported by limited evidence. Effects on physical

symptoms may also occur. Evidence is mixed as to whether aromatherapy enhances the effects of massage. “Replication, longer follow up, and larger trials are needed to accrue the necessary evidence” [114].

Massage and other forms of sensory stimulation release oxytocin which is both analgesic [115] and anxiolytic [51]. This may help to explain the analgesic and sedative qualities of massage.

There is a theoretical risk that massage could mobilise dormant cancer cells and facilitate metastatic spread. As a result of this, massage should not be performed close to tumours or close to areas with any venous thrombosis, or in patients with grossly abnormal clotting function.

Massage treatment is a non-invasive treatment that is well accepted, tolerated and comforting, and further long-term prospective studies are desirable.

### Therapeutic Touch (USA), equivalent to Healing (UK and elsewhere)

Healing usually involves the practitioner passing his or her hands over the patient’s clothed body, often without making physical contact – despite the term ‘therapeutic touch’. Reiki, spiritual healing and therapeutic touch are healing approaches. It is not apparently necessary for a patient to hold any particular form of faith or belief for it to work. Patients are often aware of tingling or warmth during the session. Both healing and massage give greater analgesia than standard treatment or pressure alone in a RCT (Post-White et al. [116]). A recent rigorous trial in chronic pain patients without a cancer diagnosis showed that healing produced the same benefit as sham healing [117], and it appears that the outcome may be due to expectation, relaxation and other non-specific effects. No adverse effects have been recorded.

### Conclusion

Complementary therapies have become popular with both the general public and cancer patients. Conventional medical personnel are now more open minded to treatment and should be aware of their patients using them. Medical staff and allied health professionals should remain justly circumspect about alternative therapies which have no supporting evidence and may be potentially harmful, including:

- Combinations of herbs, mega-vitamins, and food supplements, which are promoted as cancer cures, a ‘scam’ that has a long history [118]; such cures have even been historically promoted by

state authorities on anecdotal evidence, as in the ‘Di Bella’ episode [76].

- Patients can be exploited by well-meaning therapists some of whom offer unrealistic magical cures with little insight into the limitations of their therapy.
- Spiritual or psychological interventions that emphasise the individual’s emotions or behaviour as the **cause** of cancer. These can create unnecessary guilt and further distress in patients.
- Severe dietary regimens, which can be unnecessarily harmful to debilitated patients with no real evidence base to support their use.
- Therapists who have little experience of dealing with cancer, its pathophysiology and its medical treatment options, and who raise false hopes, believing they can correct ‘fundamental imbalances’ or get rid of ‘toxins’. This is particularly likely to be misleading when their treatment happens to coincide with a remission due to conventional therapy and they pronounce the patient ‘cured’ inappropriately.

Patients should be advised when they are at risk from practitioners who raise false hopes, from therapies that may directly harm them, and from therapies that may interfere with conventional treatments.

There is an increasing evidence base for acupuncture, hypnosis, relaxation and various forms of massage, in particular, for both non-cancer patients and cancer patients alike. Some of the limiting factors for complementary medicine research are the complex methodological problems and use of an appropriate non-treatment control. Funding of non-drug studies is also a problem. Nevertheless, well-designed studies are increasingly attracting funding from a variety of funding streams and over the next decade it will become clearer as to which forms of treatment will become more fully integrated and accepted based on an increasing evidence base, and which will fall by the wayside or fail.

### References

- 1 Ernst E, Cassileth BR. The prevalence of complementary/alternative medicine in cancer: a systematic review. *Cancer* 1998, 15; **83**(4): 777–782.
- 2 Less DB, Buschel G, Ritter E, Horneber MA. Unconventional methods in cancer patients: prevalence and patterns of use in European countries. (Abstracts of the 7th International Conference of Anticancer Research. October 25–30, 2004, Corfu, Greece). *Anticancer Res* 2004, **24**(5D), 3411–3698.
- 3 Cassileth BR, Chapman CC. Alternative cancer medicine: a ten-year update. *Cancer Invest* 1996, **14**(4), 396–404.
- 4 Kelly KM, Jacobson JS, Kennedy DD, Braudt SM, Mallick M, Weiner MA. Use of unconventional therapies by children with cancer at an urban medical center. *J Pediatr Hematol Oncol* 2000, **22**(5), 412–416.

- 5 Downer SM, Cody MM, McCluskey P, Wilson PD, Arnott SJ, Lister TA, *et al.* Pursuit and practice of complementary therapies by cancer patients receiving conventional treatment. *BMJ* 1994, 9; **309**(6947), 86–89.
- 6 Baum M. Quack cancer cures or scientific remedies. *J R Soc Med* 1996, **89**(10), 543–547.
- 7 Cosh J, Sikora K. Conventional and complementary treatment for cancer. *BMJ* 1989, 6; **298**(6682), 1200–1201.
- 8 Sellick SM, Zara C. Critical review of 5 nonpharmacologic strategies for managing cancer pain. *Cancer Prevent Control* 1998, **2**(1), 7–14.
- 9 Birch S, Kaptchuk T. History, nature and current practice of acupuncture: an East Asian perspective. In Ernst E, White A, eds. *Acupuncture: A Scientific Appraisal*. Oxford, Butterworth-Heinemann, 1999, 11–30.
- 10 White A. Electroacupuncture and acupuncture analgesia. In Filshie J, White A, eds. *Medical Acupuncture: A Western Scientific Approach*. Edinburgh, Churchill Livingstone, 1998, 153–175.
- 11 de Bie RA, Verhagen AP, Lenssen AF, de Vet HCW, van den Wildenberg FAJ, Kootstra G, *et al.* Efficacy of 904 nm laser therapy in the management of musculoskeletal disorders: a systematic review. *Phys Ther Rev* 1998, **3**(2), 59–72.
- 12 Nogier PFM. *Treatise of Auriculotherapy*. France, Maisonneuve, 1972.
- 13 Yamamoto T. New scalp acupuncture. *Acupunct Med* 1989, **6**, 46–48.
- 14 Yoshino N, Yamashita K. *Ryokaraku Acupuncture*. Ryokaraku Research Institute Limited, 1977.
- 15 Ezzo J, Berman B, Hadhazy VA, Jadad AR, Lao L, Singh BB. Is acupuncture effective for the treatment of chronic pain? A systematic review. *Pain* 2000, **86**(3), 217–225.
- 16 White A. Neurophysiology of acupuncture analgesia. In Ernst E, White A, eds. *Acupuncture: A Scientific Appraisal*. Oxford, Butterworth-Heinemann, 1999, 60–92.
- 17 Ernst E, Pittler MH. The effectiveness of acupuncture in treating acute dental pain: a systematic review. *Br Dent J* 1998, 9 **184**(9), 443–447.
- 18 Berman B, Ezzo J, Hadhazy V, Swyers JP. Is acupuncture effective in the treatment of fibromyalgia? *J Family Pract* 1999, **48**, 213–218.
- 19 Ezzo J, Hadhazy V, Birch S, Lao L, Kaplan G, Hochberg M, *et al.* Acupuncture for osteoarthritis of the knee: a systematic review. *Arthritis Rheum* 2001, **44**(4), 819–25.
- 20 Melchart D, Linde K, Fischer P, White A, Allais G, Vickers A, *et al.* Acupuncture for recurrent headaches: a systematic review of randomized controlled trials. *Cephalalgia* 1999, **19**(9), 779–86.
- 21 Trinh KV, Phillips SD, Ho E, Damsma K. Acupuncture for the alleviation of lateral epicondyle pain: a systematic review. *Rheumatology (Oxford)* 2004, **43**(9), 1085–90.
- 22 Manheimer E, White A, Berman B, Forys K, Ernst E. Meta-analysis: acupuncture for low back pain. *Ann Intern Med* 2005, **142**(8), 651–63.
- 23 Vickers AJ. Can acupuncture have specific effects on health? A systematic review of acupuncture antiemesis trials. *J R Soc Med* 1996, **89**, 303–11.
- 24 Lee A, Done ML. The use of nonpharmacologic techniques to prevent postoperative nausea and vomiting: a meta-analysis. *Anesth Analg* 1999, **88**(6), 1362–9.
- 25 Lee A, Done ML. Stimulation of the wrist acupuncture point P6 for preventing postoperative nausea and vomiting. *Cochrane Database Syst Rev* 2004, (3), CD 003281.
- 26 Richardson MA, Ezzo J, Vickers A, Allen C, Lao L, Zhang G, *et al.* Acupoint stimulation for chemotherapy induced nausea and vomiting. In *International Scientific Conference on Complementary, Alternative and Integrative Medicine Research* 2001, May; abstract.
- 27 Poulain P, Pichard Leandri E, Laplanche A, Montange F, Bouzy J, Truffa-Bachi J. Electroacupuncture analgesia in major abdominal and pelvic surgery: a randomised study. *Acupunct Med* 1997, **XV**(1), 10–13.
- 28 Kotani N, Hashimoto H, Sato Y, Sessler DI, Yoshioka H, Kitayama M, *et al.* Preoperative intradermal acupuncture reduces postoperative pain, nausea and vomiting, analgesic requirement, and sympathoadrenal responses. *Anesthesiology* 2001, **95**(2), 349–356.
- 29 Mann F, Bowsher D, Mumford J, Lipton S, Miles J. Treatment of intractable pain by acupuncture. *Lancet* 1973, **2**, 57–60.
- 30 Wen HL. Cancer pain treated with acupuncture and electrical stimulation. *Mod Med Asia* 1977, **13**(2), 12–16.
- 31 Filshie J, Redman D. Acupuncture and malignant pain problems. *Eur J Surg Oncol* 1985, **11**(4), 389–394.
- 32 Filshie J. Acupuncture for malignant pain. *Acupunct Med* 1990, **8**(2), 38–39.
- 33 Filshie J, Sease A, Ashley S, Hood J. A study of the acupuncture effects on pain, anxiety and depression in patients with breast cancer. In *Pain Society Meeting*, 1997; abstract.
- 34 Aung S. The clinical use of acupuncture in oncology: Symptom control. *Acupunct Med* 1994, **12**(1), 37–40.
- 35 Leng G. A year of acupuncture in palliative care. *Palliat Med* 1999, **13**, 163–164.
- 36 Dillon M, Lucas CF. Auricular stud acupuncture in palliative care patients: an initial report. *Palliat Med* 1999, **13**(3), 253–254.
- 37 Alimi D, Rubino C, Leandri EP, Brule SF. Analgesic effects of auricular acupuncture for cancer pain. *J Pain Symptom Manage* 2000, **19**(2), 81–92.
- 38 Alimi D, Rubino C, Pichard-Leandri E, Femand-Brule S, Dubreuil-Lemaire ML, Hill C. Analgesic effect of auricular acupuncture for cancer pain: a randomized, blinded, controlled trial. *J Clin Oncol* 2003, **21**(22), 4120–4126.
- 39 Filshie J, Penn K, Ashley S, Davis CL. Acupuncture for the relief of cancer-related breathlessness. *Palliat Med* 1996, **10**(2), 145–150.
- 40 Towleron G, Filshie J, O' Brien M, Duncan A. Acupuncture in the control of vasomotor symptoms caused by tamoxifen [letter]. *Palliat Med* 1999, **13**(5), 445.
- 41 Filshie J, Bolton T, Browne D, Ashley S. A retrospective audit of 194 patients treated with acupuncture for hot flushes in a cancer hospital. *Acupunct Med* 2005 (in press).
- 42 Dung HC. Anatomical features contributing to the formation of acupuncture points. *Am J Acupunct* 1984, **12**(2), 139–143.
- 43 Chiang CY, Chang CT, Chu HL, Yang LF. Peripheral afferent pathway for acupuncture analgesia. *Sci Sin* 1973, **16**(2), 210–217.
- 44 Dundee JW, Ghaly G. Local anesthesia blocks the antiemetic action of P6 acupuncture. *Clin Pharmacol Ther* 1991, **50**, 78–80.
- 45 Chung JM, Fang ZR, Hori Y, Lee KH, Willis WD. Prolonged inhibition of primate spinothalamic tract cells by peripheral nerve stimulation. *Pain* 1984, **19**(3), 259–275.
- 46 Pomeranz B. Acupuncture analgesia – basic research. In Stux G, Hammerschlag R, eds. *Clinical Acupuncture: Scientific Basis*. Berlin, Springer, 2001, 1–28.



- 47 Lee JH, Beitz AJ. The distribution of brain-stem and spinal cord nuclei associated with different frequencies of electroacupuncture analgesia. *Pain* 1993, **52**(1), 11–28.
- 48 Han JS, Ding XZ, Fan SG. Cholecystokinin octapeptide (CCK-8): Antagonism to electroacupuncture analgesia and a possible role in electroacupuncture tolerance. *Pain* 1986, **5**, 101–115.
- 49 Le Bars D, Villanueva L, Willer JC, Bouhassira D. Diffuse noxious inhibitory controls (DNIC) in animals and in man. *Acupunct Med* 1991, **IX**(2), 47–56.
- 50 Han JS, Terenius L. Neurochemical basis of acupuncture analgesia. *Annu Rev Pharmacol Toxicol* 1982, **22**, 193–220.
- 51 Uvnas-Moberg K. Physiological and endocrine effects of social contact. *Ann NY Acad Sci* 1997, **807**, 146–163.
- 52 Melzack R, Stillwell DM, Fox EJ. Trigger points and acupuncture points for pain: correlations and implications. *Pain* 1977, **3**(1), 3–23.
- 53 Travell JG, Simons DG. *Myofascial Pain and Dysfunction. The Trigger Point Manual*. Baltimore, Williams and Wilkins, 1983.
- 54 Baldry PE. *Acupuncture, Trigger Points and Musculo-Skeletal Pain*, 2nd edn. Edinburgh, Churchill Livingstone, 1993.
- 55 Hong C-Z, Simons DG. Pathophysiologic and electrophysiologic mechanisms of myofascial trigger points. *Arch Phys Med Rehabil* 1998, **79**, 863–872.
- 56 Roth LU, Maret-Maric A, Adler RH, Neuenschwander BE. Acupuncture points have subjective (needling sensation) and objective (serum cortisol increase) specificity. *Acupunct Med* 1997, **15**(1), 2–5.
- 57 Han JS. The neurochemical basis of pain relief by acupuncture. 1987.
- 58 Filshie J, White A. The clinical use of, and evidence for, acupuncture in the medical systems. In Filshie J, White A, eds. *Medical Acupuncture: A Western Scientific Approach*. Edinburgh, Churchill Livingstone, 1998, 225–294.
- 59 Filshie J, Cummings M. Western medical acupuncture. In Ernst E, White A, eds. *Acupuncture: A Scientific Appraisal*. Oxford, Butterworth-Heinemann, 1999, 31–59.
- 60 Ho MW, Knight DP. The acupuncture system and the liquid crystalline collagen fibers of the connective tissues. *Am J Chin Med* 1998, **26**(3–4), 251–263.
- 61 Rampes H, Peuker E. Adverse effects of acupuncture. In Ernst E, White A, eds. *Acupuncture: A Scientific Appraisal*. Oxford, Butterworth-Heinemann, 1999, 128–152.
- 62 White A, Hayhoe S, Hart A, Ernst E. Survey of adverse events following acupuncture (SAFA): a prospective study of 32,000 consultations. *Acupunct Med* 2001, **19**(2), 84–92.
- 63 MacPherson H, Thomas K, Walters S, Fitter M. A prospective survey of adverse events and treatment reactions following 34,000 consultations with professional acupuncturists. *Acupunct Med* 2001, **19**(2), 93–102.
- 64 Blom M, Dawidson I, Fernberg JO, Johnson G, Angmar-Mansson B. Acupuncture treatment of patients with radiation-induced xerostomia. *Eur J Cancer B Oral Oncol* 1996, **32B**(3), 182–190.
- 65 Wong RK, Jones GW, Sagar SM, Babjak AF, Whelan T. A Phase I-II study in the use of acupuncture-like transcutaneous nerve stimulation in the treatment of radiation-induced xerostomia in head-and-neck cancer patients treated with radical radiotherapy. *Int J Radiat Oncol Biol Phys* 2003, **57**(2), 472–480.
- 66 Linde K, Clausius N, Ramirez G, Melchart D, Eitel F, Hedges LV, et al. Are the clinical effects of homeopathy placebo effects? A meta-analysis of placebo-controlled trials. *Lancet* 1997, **350**(9081), 834–843.
- 67 Oberbaum M, Yaniv I, Ben-Gal Y, Stein J, Ben-Zvi N, Freedman LS, et al. A randomized, controlled clinical trial of the homeopathic medication TRAUMEEL S in the treatment of chemotherapy-induced stomatitis in children undergoing stem cell transplantation. *Cancer* 2001, **92**(3), 684–690.
- 68 Balzarini A, Felisi E, Martini A, De CF. Efficacy of homeopathic treatment of skin reactions during radiotherapy for breast cancer: a randomised, double-blind clinical trial. *Br Homeopath J* 2000, **89**(1), 8–12.
- 69 Clover A, Last P, Fisher P, Wright S, Boyle H. Complementary cancer therapy: A pilot study of patients, therapies and quality of life. *Complement Ther Med* 1995, **3**(3), 129–133.
- 70 Vozianov AF, Simeonova NK. Homeopathic treatment of patients with adenomas of the prostate. *Br Homeopath J* 1990, **79**, 148–151.
- 71 Reilly D. *The Evidence for Homeopathy*. Glasgow, Academic Department for Homeopathy, Grampian Health Board, 1995.
- 72 Spaulding-Albright N. A review of some herbal and related products commonly used in cancer patients. *J Am Diet Assoc* 1997, **97**(10 Suppl 2), S208–S215.
- 73 Kalant H. Medicinal use of cannabis: history and current status. *Pain Res Manage* 2001, **6**(2), 80–91.
- 74 Martin BR, Wiley JL. Mechanism of action of cannabinoids: how it may lead to treatment of cachexia, emesis, and pain. *J Support Oncol* 2004, **2**(4), 305–314.
- 75 Tramer MR, Carroll D, Campbell FA, Reynolds DJ, Moore RA, McQuay HJ. Cannabinoids for control of chemotherapy induced nausea and vomiting: quantitative systematic review. *BMJ* 2001, **323**(7303), 16–21.
- 76 Remuzzi G, Schieppati A. Lessons from the Di Bella affair. *Lancet* 1999, **17**; **353**(9161), 1289–1290.
- 77 Hajto T, Hostanska K, Frei K, Rordorf C, Gabius HJ. Increased secretion of tumor necrosis factors alpha, interleukin 1, and interleukin 6 by human mononuclear cells exposed to beta-galactoside-specific lectin from clinically applied mistletoe extract. *Cancer Res* 1990, **50**(11), 3322–3326.
- 78 Kleijnen J, Knipschild P. Mistletoe treatment for cancer. Review of controlled trials in humans. *Phytomedicine* 1994, **1**, 255–260.
- 79 Kaegi E. Unconventional therapies for cancer: 1. Essiac. The Task Force on Alternative Therapies of the Canadian Breast Cancer Research Initiative. *CMAJ* 1998, **158**(7), 897–902.
- 80 Li QS, Cao SH, Xie GM, Gan YH, Ma HJ, Lu JZ, et al. Combined traditional Chinese medicine and Western medicine. Relieving effects of Chinese herbs, ear-acupuncture and epidural morphine on postoperative pain in liver cancer. *Chin Med J (Engl)* 1994, **107**(4), 289–294.
- 81 Fugh-Berman A. Herb-drug interactions. *Lancet* 2000, **355**(9198), 134–138.
- 82 Stahelin HB. Critical reappraisal of vitamins and trace minerals in nutritional support of cancer patients. *Support Care Cancer* 1993, **1**(6), 295–297.
- 83 Pathak AK, Bhutani M, Guleria R, Bal S, Mohan A, Mohanti BK, et al. Chemotherapy alone vs. chemotherapy plus high dose multiple antioxidants in patients with advanced non small cell lung cancer. *J Am Coll Nutr* 2005, **24**(1), 16–21.
- 84 Boyle FM. Adverse interaction of herbal medicine with breast cancer treatment. *Med J Aust* 1997, **167**(5), 286.
- 85 Spiegel D, Moore R. Imagery and hypnosis in the treatment of cancer patients. *Oncology* 1997, **11**(8), 1179–1189.
- 86 Hilgard ER, Hilgard JR. *Hypnosis in the Relief of Pain*. California, William Kaufmann, 1975.

- 87 Spiegel H, Spiegel D. *Trance and Treatment*. Washington, American Psychiatric Press, 1978.
- 88 Barber J, Gitelson J. Cancer pain: psychological management using hypnosis. *CA Cancer J Clin* 1980, **30**(3), 130–136.
- 89 Barber J. Incorporating hypnosis in the management of chronic pain. In Barber J, Adrian C, eds. *Psychological Approaches to the Management of Pain*. New York, Brunner/Mazel, 1982, 40–59.
- 90 NIH Technology Assessment Panel on Integration of Behavioral and Relaxation Approaches Into the Treatment of Chronic Pain and Insomnia. Integration of behavioral and relaxation approaches into the treatment of chronic pain and insomnia. *JAMA* 1996, **276**(4), 313–318.
- 91 Spiegel D, Bloom JR. Group therapy and hypnosis reduce metastatic breast carcinoma pain. *Psychosom Med* 1983, **45**(4), 333–339.
- 92 Spiegel D, Bloom J, Kraemer HC, Gottheil E. The beneficial effect of psychosocial treatment on survival of metastatic breast cancer patients: A randomized prospective outcome study. *Lancet* 1989, **ii**, 888–891.
- 93 Walker LG, Green VL, Greenman J, Walker AA, Sharp DM. PNI and chronic malignant disease: cancer. In Irwin M, Vedhara V, eds. *Human Psychoneuroimmunology (PNI)*. Oxford, Oxford University Press, 2005, in press.
- 94 Watson M, Haviland JS, Greer S, Davidson J, Bliss JM. Influence of psychological response on survival in breast cancer: a population-based cohort study. *Lancet* 1999, **354**, 1331–1336.
- 95 Montgomery GH, David D, Winkel G, Silverstein JH, Bovbjerg DH. The effectiveness of adjunctive hypnosis with surgical patients: a meta-analysis. *Anesth Analg* 2002, **94**(6), 1639–1645.
- 96 Syrjala KL, Donaldson GW, Davis MW, Kippes ME, Carr JE. Relaxation and imagery and cognitive-behavioural training reduce pain during cancer treatment: a controlled clinical trial. *Pain* 1995, 189–198.
- 97 Lioffi C, White P. Efficacy of clinical hypnosis in the enhancement of quality of life of terminally ill cancer patients. *Contemp Hypn* 2001, **18**(3), 145–160.
- 98 Finlay IG, Jones OL. Hypnotherapy in palliative care. *J R Soc Med* 1996, **89**(9), 493–496.
- 99 Wild MR, Espie CA. The efficacy of hypnosis in the reduction of procedural pain and distress in pediatric oncology: a systematic review. *J Dev Behav Pediatr* 2004, **25**(3), 207–213.
- 100 Hendler CS, Redd WH. Fear of hypnosis: The role of labeling in patients' acceptance of behavioral intervention. *Behav Ther* 1986, **17**, 2–13.
- 101 Rhiner M, Dean GE, Ducharme S. Nonpharmacologic measures to reduce cancer pain in the home. *Home Health Care Manage Pract* 1996, **8**(2), 41–47.
- 102 LeBaron S, Zeltzer LK, Fanurik D. Imaginative involvement and hypnotizability in childhood. *Int J Clin Exp Hypn* 1988, **XXXVI**(4), 284–295.
- 103 Kuttner L, Bowman M, Teasdale M. Psychological treatment of distress, pain and anxiety for young children with cancer. *Dev Behav Pediatr* 1988, **9**(6), 374–381.
- 104 Simonton OC, Simonton MS, Creighton S. *Getting Well Again*. Los Angeles, CA, J.P. Tarcher, 1978.
- 105 Ader R, Cohen N, Felten D. Psychoneuroimmunology: interactions between the nervous system and the immune system. *Lancet* 1995, **345**, 99–103.
- 106 Wilkes E. *Complementary Therapy in Hospice and Palliative Care*. Report for Trent Palliative Care Centre, 1992.
- 107 Ferrell-Torry AT, Glick OJ. The use of therapeutic massage as a nursing intervention to modify anxiety and the perception of cancer pain. *Cancer Nurs* 1993, **16**(2), 93–101.
- 108 Corner J, Cawley N, Hildebrand S. An evaluation of the use of massage and essential oils on the wellbeing of cancer patients. *Int J Palliat Nurs* 1995, **1**(2), 67–73.
- 109 Ko DS, Lerner R, Klose G, Cosimi AB. Effective treatment of lymphedema of the extremities. *Arch Surg* 1998, **133**(4), 452–458.
- 110 Kite SM, Maher EJ, Anderson K, Young T, Young J, Wood J, et al. Development of an aromatherapy service at a Cancer Centre. *Palliat Med* 1998, **12**(3), 171–180.
- 111 Sims S. Slow stroke back massage for cancer patients. *Nurs Times* 1986, **82**(47), 47–50.
- 112 Cawley N. A critique of the methodology of research studies evaluating massage. *Eur J Cancer Care (Engl)* 1997, **6**(1), 23–31.
- 113 Cassileth BR, Vickers AJ. Massage therapy for symptom control: outcome study at a major cancer center. *J Pain Symptom Manage* 2004, **28**(3), 244–249.
- 114 Fellowes D, Barnes K, Wilkinson S. Aromatherapy and massage for symptom relief in patients with cancer. *Cochrane Database Syst Rev* 2004, (2), CD 002287.
- 115 McCarthy MM, Altemus M. Central nervous system actions of oxytocin and modulation of behavior in humans. *Mol Med Today* 1997, **3**(6), 269–275.
- 116 Post-White J, Kinney ME, Savik K, Gau JB, Wilcox C, Lerner I. Therapeutic massage and healing touch improve symptoms in cancer. *Integr Cancer Ther* 2003, **2**(4), 332–344.
- 117 Abbot NC, Harkness EF, Stevinson C, Marshall FP, Conn DA, Ernst E. Spiritual healing as a therapy for chronic pain: a randomized, clinical trial. *Pain* 2001, **91**(1–2), 79–89.
- 118 Cassileth BR, Brown H. Unorthodox cancer medicine. *CA Cancer J Clin* 1988, **38**(3), 176–186.