

# Non-Drug Approaches for cancer patients

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## Abstract

Non pharmacological treatments are valuable adjuncts to the treatment modalities for patients with cancer pain. Variety can be used to minimize pain and concomitant mood disturbance and improve quality of life. Physicians may feel relatively uninformed about the approaches used and scientific support for cancer patients. This article discusses a variety of non-pharmacological and complementary and alternative approaches widely used in patients with cancer pain. It focuses on those with scientific support or encouraging preliminary evidence, with the intention of familiarizing physicians with therapies that may supplement routine oncological treatment.

Pain is a multi-faceted condition involving biological, psychological and social effects. The incidence of pain in cancer patients has been reported to be between 46% and 79% during cancer care and 65% for those with advanced disease. Etiological causes for cancer pain include disease progression, treatment strategies for stopping cancer (e.g. surgery, chemotherapy, or radiotherapy), inactivity musculoskeletal pain, and cancer-related infections that cause neuropathic pain.

A mixture of pharmacological and non-pharmacological treatment approaches for cancer pain is the standard of care as set out in the latest recommendations of the World Health Organization (WHO).

## Model of Biopsychosocial

This model incorporates the biological, psychological and social aspects of treatment and has been extended to patients with cancer pain.<sup>10</sup> There is also a metaphysical or existential component of pain in cancer patients, particularly those diagnosed with terminal illness. Pain-related quality of life has been categorized into three well-being variables according to biopsychosocial representation:

- Physical wellbeing;
- psychological well-being (i.e., cognition, affect, moral causes, coping, communication, and the sense of pain and cancer);
- interpersonal well-being (e.g. social support, working roles)

The prevalent model of pain, Gate Control Theory, postulates a spinal cord control mechanism in the dorsal horn that receives ascending and descending signals from the nervous system and balances their integration. In the end, the experience of pain is decided by the biological assessment of these inputs.

## Cognitive-Behavioral Therapy

Cognitive behavioral (CBT) can be helpful for patients with cancer pain.<sup>19</sup> These strategies usually include telling patients to perform one of the following alone or in combination:

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- To monitor their pain
- Monitor thoughts and feelings during the prescribed duration of the day;
- Follow pain exacerbations.

Patients then explore with the psychiatrist the content of these feelings and their connection to subsequent emotions. Maladaptive coping, often attributed to impaired unconscious reasoning and belief, may be recognized and changed by psychological intervention. Catastrophizing is one of the most important maladaptive adaptive coping mechanisms for pain relief. This is a propensity to make pessimistic perceptual and emotional judgments about discomfort or situations (e.g., "This discomfort is terrible, and I can't bear it." Or, "This pain means I'm going to die soon"). Catastrophization is associated with depression, elevated pain severity, and life-related pain and anxiety interference. The expectations of pain control and high self-efficacy that cancer survivors may do anything to affect their pain are associated with diminished pain in these survivors.

## Adjuvant methods

Together with effective pharmacological and interventional modes of care, include non-pharmacological and complementary medicine approaches. A comprehensive review of all non-pharmacological and alternative treatment approaches used in the treatment of cancer pain is beyond the scope of this Report. The emphasis is therefore on non-pharmacological treatments and complementary medicine commonly used to treat patients with cancer pain.

The significance of gate control theory for the treatment of patients with cancer pain is that downward cortical inputs that influence pain perception include neurological and psychosocial variables such as pain, emotions, stress responses, and cognition. Interventions aimed at changing these variables may also alter the perception and understanding of pain.

## Psychological interference

Attention of social problems such as emotional anxiety, coping, and cancer belief is an important component of pain management services. Cancer pain can be aggravated by psychological distress, particularly mood disturbance, depression, panic, and anxiety, as shown by the vast majority of studies. Panic of disease deterioration and painful death is normal, but the degree of psychological distress varies among patients.

Psychological conditions with which patients need care are normal in cancer but tend to be more prominent in certain patients that often experience clinically severe pain. Thus, early intervention with mental health providers who can identify and manage psychological disorders (e.g. serious affective disorders, attachment disorders, and anxiety disorders) is essential.

## Behavioral interference

This treatment requires an exploration of the behaviour that has been learned or conditioned to assess and prevent suffering and to treat people with suffering or psychological distress. Psychophysiological techniques such as biofeedback and calming have been classified as behavioural. Other such techniques include modeling suitable actions, performing tasks in a "ranked" or structured way that encourages achievement and affirmation, practicing tasks (e.g. sometimes to minimize fear) and controlling praise or incentives offered to significant others. Other strategies involve modeling acceptable behavior, executing tasks in a "ranked" or organized fashion that promotes accomplishment and affirmation, practicing tasks (e.g. often mitigating fear) and managing appreciation or rewards given to significant others. The hybrid technique involves mediation, hypnosis, music therapy, and systemic desensitization. The last approach incorporates stimulation with sensitivity to conditions that induce fear; it can contribute to fear regulation.

Hypnosis is a particularly intense state of concentration that can be used to change unpleasant sensations. It has been found to be highly effective in the management of pain after invasive operations or surgery.

## Physical Modality

Unique non-pharmacological physical modalities are also used to increase pain management plans. For example, rehabilitative therapy, such as optimizing range of motion, stamina, agility and neuromuscular function, can minimize instability and disuse-related pain. Another common physical therapy option, transcutaneous electrical stimulation (TENS), provides mild electrical stimulation to painful regions. The use of heat or cold or a mixture of both is another widely prescribed physical modality. The first technique is most commonly used to ease postoperative pain and pain from cancer-related inflammatory processes. Caution must be taken while using heat in patients with insensate tissue, arterial insufficiency, metastatic cancers, diathesis bleeding, or cognitive deficits; such conditions can preclude a patient from hearing alerts of too much heat.

Finally, therapeutic movement and massage should be used to enhance the range of motion and relieve muscle pain. Physical therapy trained in the treatment of chronic or cancer pain also have the expertise to motivate certain patients to exercise, particularly though they observe limited improvement.

## Psychosocial interference

Cancer suffering also impacts the psychological well-being of individuals. Keefe et al identify many broad types of treatments intended to

treat patients with cancer pain, including cancer education, hypnosis and imaging, and instruction in coping skills. Educational engagement is based on helping people to understand the assessment of discomfort and address obstacles to pain management.

A National Institutes of Health (NIH) Consensus Declaration on cancer symptom treatment details barriers to pain control. Casts, role playing, counseling, workshops and didactic sessions have been examined. While some of these approaches have positive outcomes, others do not; further research is required to determine the effectiveness of educational approaches. While some of these interventions have promising results, others do not; more analysis is needed to assess the feasibility of instructional approaches to critical potential directions in the study of biopsychosocial aspects of cancer pain. The reference to a psychologist is more an anomaly than the rule for patients with disease-related pain.

At times, access to facilities is still challenging. Subsequently, Keefe et al suggest that future investigate be coordinated toward down to earth procedures for integration, counting including medical caretakers in cognitive-behavioral preparing that can be fulfilled amid therapeutic arrangements, and using phone or Web frameworks to convey self-management preparing. These techniques have been used in back pain and osteoarthritis trials with good results.

## Therapeutic massage

Therapeutic massage goes back thousands of years to ancient civilizations of China, Japan and India. It is characterized as the systematic manual or mechanical manipulation of the body's soft tissues by movements such as rubbing, kneading, pushing, rolling or clapping, or a combination of movements for therapeutic purposes, including pain relief, muscle relaxation and circulation promotion.

Massage increases the pleasure and reduces levels of cortisol and anxiety. Psychosocial problems for survivors include discomfort, exhaustion, cognitive changes, body appearance, sexual functioning, infertility, financial challenges, and anxiety to the caregiver. Individuals can also experience medical and neurological disorders that include signs of traumatic stress, depression, anxiety, and recurrence.

The need for greater attention and randomized psychosocial treatments for cancer survivors' problems has recently been demonstrated. No epidemiological data exists for chronic pain in cancer patients, while post-treatment pain syndromes are well established. Surgery, amputation, radiation therapy, and chemotherapy are also possible causes of nerve damage arising from chronic pain. Slow improvement of cancer will also lead to persistent suffering. Recognizing and treating those with chronic pain in the same multidisciplinary way as those used during primary cancer care and those with nonmalignant pain was essential to improving the quality of life of cancer survivors.

## Complementary medications

Complementary medicine (CAM) treatment modality has risen since 1993, when Eisenberg et al disclosed in a first nationwide survey that one in three respondents had used an unorthodox or CAM treatment modality in the previous year. However, studies have shown that patients frequently do not disclose their use of CAM to their doctors, often because of assumptions that their doctors are not responsive to CAM care. High-quality empiric results on CAM methods are emerging from expanded study due to the establishment of the National Center for Complementary and Alternative Medicine (NCCAM) by the National Institutes of Health; however, comprehensive research on a wide variety of approaches is not yet available.

Several alternative therapy approaches have some convincing scientific research or positive preliminary data: traditional Chinese medicine, mind-body medicine, and therapeutic massage. Several alternative therapy approaches have some convincing scientific research or positive preliminary data: traditional Chinese medicine, mind-body medicine, and therapeutic massage.

## Chinese Traditional Medicine

Traditional Chinese medicine dates back more than 4000 years and considers wellbeing as an equilibrium between the person and the environment. According to traditional Chinese medicine, qi or ch'i is a life energy force that flows in characteristic patterns (meridian) corresponding to five elements (earth, wood, metal, water, and fire). Physical and psychological disease is conceived as an inappropriate flow or blockage of qi around a meridian. The goal of traditional Chinese medicine is therefore to maintain an equilibrium in opposite meridian poles, referred to as yin and yang. Three elements of traditional Chinese medicine are acupuncture, qigong and neuro-emotional technique (NET).

## Acupuncture

Acupuncture, acupuncture, and electroacupuncture are types of conventional Chinese medicine in which the physical signs of meridians (e.g. joint pain) are measured and qi is encouraged or rebalanced. Pressure on meridian points can be exerted by inserting small gage needles (e.g. acupuncture) or a mixture of needles and low-frequency electrical current (electroacupuncture) or by manual finger pressure (acupuncture).

Physicians educated in Western medicine and acupuncture are most likely to follow a pragmatic approach to activate target points, tender points or a combination of segmental points suitable to a distressed location, while these referral patterns also mimic conventional meridian lines. Some research suggests that the benefits of acupuncture are related to the release of multiple endogenous compounds.

Acupuncture has been shown to better relieve a wide spectrum of pain disorders. Evidence is especially good for the use of this procedure in acute pain with little support for the management of post-process pain in cancer patients.

In addition to alleviating cancer pain, acupuncture has been used to treat patients with radiation-induced xerostomia, cancer-related complications such as shortness of breath due to primary or secondary malignancy, lower extremity edema secondary to intrapelvic lymph node dissection due to malignant gynecological tumors, and women with menopausal symptoms due to tamoxifen.

Side effects of acupuncture, acupuncture, and electroacupuncture are usually restricted to mild bruising or pain at the point of touch. Acupuncture is contraindicated in the immediate region of the unstable spine, in people with serious clotting problems or neutropenia, and in limbs with lymphedema. In comparison, semi-permanent needles, which have been taped for days at a time, are contraindicated in patients with valve heart disease.

## Qigong

Qigong is an ancient method to harness energies by gradual body movements and meditation, with or without visualization and breathing exercises. Like acupuncture and other traditional Chinese therapies, the aim of qigong is to open blocked energy pathways and promote qi.

While often taught in isolation for healing and health reasons, qigong is part of a cultivation method or lifestyle framework in Buddhism and Taoism directed at spiritual liberation and longevity.

## Neuroemotional Technique

Neuroemotional Technique (NET) is an intervention focused on conventional Chinese medicine and involves measuring and physically holding corresponding meridian pulse points, thus promoting cognitive and emotional processing and resolution of previous stressful or anxiety-producing events. A preliminary NET analysis of female cancer survivors with associated traumatic stress symptoms compared with a post-intervention exposure to a cancer-related case. Decreases in physiological reactivity and subjective scores of event-related pain were observed in addition to reduced levels of pro-inflammatory cytokines in response to the event.

## Mind-body therapies

The word mind-body therapies is rather vague and refers to a collection of therapeutic modalities that include the awareness of the two-way influence of both systems. Any of these modalities are commonly classified as more traditional forms of care, such as gradual muscle relaxation. Hypnosis and meditation services are commonly considered to be CAM techniques and are reviewed here.

1. Hypnosis is a dynamic mechanism of attentive, receptive focus marked by a changed sensorium, altered psychological condition, and limited motor function. NIH Technology Appraisal Panel found good support for the use of hypnosis in reducing pain, even cancer-related pain. Pressure relief is believed to occur by cognitive distraction, muscle relaxation, and modification of vision. Hypnosis has been used to successfully alleviate chemotherapy-related nausea and vomiting. This use of hypnosis focuses on the suppression of discomfort and physical reactions associated with hospital-associated reactions.

2. Meditation and Mindfulness – Based Stress Reduction — Meditation is a technique adapted from more systematic conventional Eastern programs. Yoga, for example, is an ancient Eastern Indian method that prescribes a way of life that requires healthy diet, actions, physical exercise, and sleep hygiene. Mindfulness-based stress reduction (MBSR) is one such technique that has demonstrated clinical benefits to people with a wide variety of medical problems, including cancer. This process promotes moment-to-moment consciousness through routine meditative practice. Participants learn to respond to their perception, including negative emotional feelings and non-judgmental states, embrace and relax.

MBSR has been shown to enhance patients' ability to deal with prostate cancer and to alleviate depression and mood problems in a population of patients with mixed forms of cancer. Shifts in immune system markers (reduction in T1 pro-inflammatory lymphocyte to T2 anti-inflammatory lymphocyte ratio) have also been reported in patients with breast cancer and prostate cancer following an 8-week MBSR program.

3. Mindfulness-based art therapy (MBAT) is a recently designed curriculum for cancer patients that incorporates MBSR into a supportive-expressive group model. A randomized clinical trial of MBAT showed substantial decreases in psychiatric pain and improvement in the quality of life of women living with mixed cancer relative to those on the waiting list.

4. MBAT differs from MBSR in that it is primarily tailored for cancer patients, offers a non-verbal creative-expressive aspect by art therapy, and is tailored for small groups.

## Conclusion

Pharmacologic and interventional therapies are the first-line recovery options for patients with cancer-related pain. However, the possible utility of these techniques can be limited by adverse effects. In addition, pharmacological and interventional methods alone will not be necessary to treat the whole person with cancer. Adjuvant recovery approaches

include physical, psychiatric and social treatments as well as alternative medicine strategies. While all of these methods provide sufficient scientific data as applied to other conditions of pain (e.g. nonmalignant pain), well-designed trials directly addressing cancer pain are required. In addition, an innovative scholarship that explores how to make physicians more conscious of these strategies and how to make treatment more available to patients is important.

Many of these treatments have little downside and can increase the capacity of patients to manage their pain and their lives and enhance their quality of life. In addition, the physician-patient partnership is expected to benefit from the discussion and introduction of these techniques into cancer treatment. Perhaps there is no better example than a severe cancer disease of the need to have a holistic biopsychosocial care plan that involves the fullest possible variety of clinical modalities, especially where pain is involved.

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