Complementary palliative care for head & neck cancer: A review

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Abstract
When the oral cancer is too advanced to be cured, maintaining patient’s quality of life (QoL) is the primary goal of treatment. Palliative treatments play an even larger role to ease symptoms from the cancer treatment itself. The palliative treatment helps to keep the cancer patient comfortable and maintain QoL for many days as possible. Historically, palliative care was intended to relieve pain and discomfort for the dying ones whereas recently it is considered as an integral part of cancer care since cancer patients are living longer. Non-pharmacological therapies such as complementary and alternative medicine have a developing role in the management of cancer and cancer-related symptoms. Integration of non-pharmacological therapies within traditional medical practice creates a comprehensive framework for managing symptoms, reducing suffering, and improving QoL. It incorporates the principles of patient centered, family systems-oriented care. The domains of care addressed by palliative care include physical, cultural, psychological, social, spiritual, legal, and ethical. This review briefly explains the different methods of non-pharmacological palliative care for head and neck cancer patients.

Keywords: Alternative therapy, cancer, complementary therapy, palliative care

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Introduction
Advances in radiation therapy, chemotherapy, and chemoradiation therapy, have resulted in significant improvement in morbidity and mortality of head and neck cancer (HNC) patients. However, treatment of HNC with these therapies is associated with significant adverse effects. Immediate effects include mucositis, nausea, vomiting, dehydration, malnutrition, weight loss, pain, and leukopenia. Later effects include xerostomia, fibrosis, and associated trismus, contributing to dysphagia. The quality of life (QoL) is affected as patients are often not able to be eat orally leading to severe weight loss and malnutrition.[1]

An increasing number of cancer patients have been attempting complementary and alternative medicine (CAM) as they are suffering with persistent and heavy disease burden. Recent literature reveals that 34-40% of patients opt non-traditional medical treatment such as acupuncture and moxibustion.[1-2]

When curative treatment is no longer showing results, palliative care can begin to play an essential role in the life of person until he lives. A palliative care specialist should be able to predict the patient’s requirements as the disease progresses and deliver the proper supports in place. The palliative comes from the word “palliate,” means to relieve the symptoms of illness without curing.[2] The palliative care is often a way to sustain the highest possible QoL for both cancer patients and families.

Role of Acupuncture
Research has demonstrated that acupuncture is an effective and safe adjunct therapy for cancer care. Acupuncture analgesia has been investigated for several decades to treat a variety of symptoms associated with cancer and the side effects of cancer treatments.[3]

Randomized clinical trials have reported that acupuncture is effective for chemotherapy induced nausea, vomiting, cancer pain, neutropenia, fatigue, peripheral neuropathy, and radiation-induced xerostomia.[2]

Xerostomia is common following radiation therapy of HNC due to atrophy of salivary glands and changes of the vascular and connective tissues in the gland. Current literature and best clinical practice for the overall management strategy to stimulate secretion may be directed locally (saliva substitutes, sucking lozenges, and gum chewing) or systemically (pilocarpine HCL, bromhexine, and anetholetrithione). Treatment for xerostomia is mainly palliative. The disadvantages of these therapies include short-lived effects, frequent applications, and adverse
effects such as sweating, urinary frequency, rhinitis, dyspepsia, and others.\(^4\)

Acupuncture as an alternative therapy demonstrated increase salivary flow rate in patients with salivary gland hypofunction and xerostomia associated with disease in western medical literature since 1981.\(^5\) Acupuncture’s mechanism for pain relief is easier to understand than its action in resuming salivation in patients refractory to pilocarpine. The Eastern philosophy predict that xerostomia is relieved by removing a blockage of Qi.\(^2\)

**Mechanism of Action**

Numerous studies of acupuncture in animal models and humans suggest that the effect is primarily based on activation of the neuroendocrine system involving the central and peripheral nervous systems.

Literature on animal research suggests that therapeutic effects of acupuncture are mediated through opiodiergic and monoaminergic neurotransmission involving the brainstem, thalamus, hypothalamic, and pituitary gland. Human functional magnetic resonance imaging, positron emission tomography, and electroencephalography have demonstrated that acupuncture stimulates wide network of brain areas, including the primary somatosensory, secondary somatosensory, anterior cingulated, prefrontal, insular cortices, amygdale, hippocampus, and hypothalamus.\(^3\)

**Acupuncture for Pain and Dysfunction after Neck Dissection**

Surgery for clinically positive cervical nodes may be used in palliative cases to reduce the bulk of tumor resulting in sacrifice of structure. Removal of spinal accessory nerve during neck dissection leads to the sequelae of shoulder pain and dysfunction. The efficacy of physical therapy and anti-inflammatory drugs are often disappointing in spite of wide prescription to address this complication. Extensive MEDLINE search and the Cochrane Controlled Trials Registry identified only one controlled trial comparing progressive resistance exercise training versus standardized therapeutic exercise approach for 12 weeks, reporting better outcomes with the former.\(^5\)

Acupuncture is a safe and well-tolerated treatment. Clinical research from randomized controlled trials of acupuncture versus routine care to treat pain and dysfunction after neck dissection for cancer patients supports its efficacy. They were randomly assigned to weekly acupuncture versus routine care (e.g., physical therapy, analgesia, and/or anti-inflammatory drugs) for 4 weeks and observed significant reductions in pain, dysfunction, and xerostomia in patients receiving acupuncture.\(^5\)

**Dysphagia**

Dysphagia is a common side effect (50% of patients) following chemoradiation therapy leading to aspiration and significantly affecting QoL in HNC patients. Swallowing problems continue to occur during the first 12 months after CRT because of the late effect of gradual fibrosis of the pharyngeal muscles and soft tissues, persisting xerostomia, and damaged swallowing muscles. Few studies suggest that swallowing function for HNC patients fails to improve in spite of swallowing therapy after 12 months of radiation therapy.\(^6\)

Lu et al., in a retrospective case series, reported that 10 stage III/IV squamous cell carcinoma patients were treated with acupuncture for radiation-induced dysphagia and xerostomia. Manual acupuncture and electroacupuncture were used once a week. Nine of 10 patients reported various degrees of subjective improvement in swallowing functions, xerostomia, pain, and fatigue levels.\(^5\) Despite safety and efficacy of CAM, therapies among cancer patients, acupuncture use in this population remains low. Some preliminary studies demonstrated that acupuncture improves dysphagia by salivary production, restoring swallowing reflex, and inhibiting the fibrosis process.\(^6\)

**Chemotherapy induced peripheral neuropathy**

Peripheral neuropathy has been reported to occur in 10-20% of cancer patients treated with neurotoxic chemotherapy agents including platinum compounds, vinca alkaloids, taxanes, and suramin. Symptoms of neurotoxicity can appear immediately, during, or after the course of chemotherapy which depends on the type and the cumulative dose of chemotherapy used. Wong and Sagar suggested that the effect of an empirical acupuncture protocol on chemotherapy-induced peripheral neuropathy is promising.\(^6\)

**Cancer Related Fatigue (CRF)**

The national comprehensive cancer network defines CRF as “a distressing persistent, subjective sense of physical, emotional and/or cognitive tiredness or exhaustion related to cancer or cancer treatment that is not proportional to recent activity and interferes with usual functioning.” Approximately 84% of patients with cancer experience fatigue.\(^4\)

CRF has significantly led to the QoL deterioration rapidly in patients with cancer. Acupuncture refers to penetrating needle into the skin at precise locations (acupuncture points) then using twist and lifting technique to treat diseases. It is described as a “complementary medicine,” showing efficacy in the treatment of many conditions and resulting in fewer side effects compared with other medical procedures, such as surgery or pharmaceuticals. Acupressure is form of touch therapy where same points on body as used in acupuncture are stimulated with finger pressure instead of inserting needles.\(^8\)

**Myelosuppression**

Myelosuppression occurs when significant amount of bone marrow is radiated to a certain dose. The patients with myelosuppression have increased risk of infection, bleeding, and
anemia can lead to significant treatment-related morbidities, mortalities, and poor QoL.[9]

Traditional Chinese medicine views the depressed immunity and susceptibility to infection and cancer progression as the weakening of the body healthy energy or Qi and that the “kidney” function is declined leading to an inability to maintain blood elements. Multiple traditional Chinese medicine treatment modalities such as herbs, acupuncture, and moxibustion approaches aim to improve body Qi and to strengthen kidney.[9]

Role of Supplements in Cancer

Nutrition is another important concern for people with oropharyngeal cancers due to difficulty in swallowing. Supplements administered daily for prolong duration can be valuable addition to conventional cancer therapies. Vitamin A, vitamin C, vitamin E, carotenoids, selenium, and coenzyme Q10 helps to protect cells from free radicals and may inhibit the growth of cancerous cells. These supplements are particularly beneficial for people who have been treated with chemotherapy and radiotherapy. Amino acids may speed healing and slow tumor growth as well. Rotating Echinacea in 3 weeks cycles with extract of medicinal mushrooms, ginseng, astragalus may strengthen overall immunity during cancer treatment.[10]

Moxibustion in Cancer

Moxibustion is a traditional Chinese treatment modality which uses heat produced by the burning of herbal preparations containing Artemisia vulgaris, instead of using needles, to stimulate acupuncture points. The herbal preparation is formed into a cylinder shape called moxa stick and used by burning a moxa stick to apply heat to acupuncture points without direct skin contact.[11] This modality can be of some benefit in the management of nausea, vomiting, cancer pain, and xerostomia.

The possible rationale of acupuncture and moxibustion may be to open the energy channels and network vessels, assist right Qi, expel evil Qi, regulate the body’s physiological functions, thus achieving the health.[9] When patients with terminal cancer are not able to tolerate conventional therapies, or loss confidence toward them, more and more patients worldwide are willing to attempt acupuncture and moxibustion.[12,14]

Safety and Side Effects of Acupuncture and Moxibustion as a Therapy for Cancer

Life-threatening adverse effects include bleeding, organ perforation, pneumothorax, perichondritis, bacterial endocarditis, arrhythmias, sepsisemia, spread of blood-borne infections (hepatitis and HIV), burns, scarring, and allergic reactions. Risk factors for complications include: Inadequate training, bleeding disorders, immunocompromised state, asthma, cachexia, diabetes, open wounds, cardiac valve abnormalities, and vasovagal sensitivity.[9]

Instant recognition of these adverse effects is required for successful life-saving emergency treatment. Minor adverse effects include mild skin reactions, dermatitis, local pain, bruising, syncope, and drowsiness.[9]

Incidence of complications can be reduced by increased training and awareness of potential adverse effects. Informed patient consent is important before starting these complementary therapies. Hospital and clinical practice guidelines and certification of staff will ensure that practice is as safe as possible.

Anxiety and Depression

The presence of anxiety can reduce pain threshold, causes insomnia, worsen QoL and may affect cancer treatment outcome. Adequate management of anxiety and depression in cancer patients is important to ensure better QoL and to ensure optimum treatment outcomes. Conventionally, depression and anxiety are managed with the use of oral medications, such as amitriptyline or serotonin reuptake inhibitor drugs and inevitably, with associated side effects. Clinical studies have shown acupuncture may be a viable alternative to drugs treatments for anxiety and depression.[12,14]

Mind-Body Therapies

Mind-body therapies such as psychotherapy, relaxation and controlled breathing, guided imagery, hypnosis, and meditation, are recommended for managing anxiety, mood disturbance, pain and in improving health-related QoL in cancer patients.[14]

Meditation

Meditation is an attention state reached through intentional focusing of attention on a repetitive behavior and/or thought. Mindfulness meditation has been investigated using a wide range of study designs, although sample sizes tend to be smaller and there are few RCTs. Results suggest that mindfulness meditation may improve QoL, feelings of wellbeing, fatigue levels, anxiety, and depression. No risk factors were identified in any of the studies.[14]

Yoga

Yoga is a 5,000 years old spiritual practice that uses body postures, controlled breathing, and meditation to achieve improved physical, emotional, and spiritual well-being. There are many forms of yoga, which emphasize differing aspects of practice. Symptoms in chronically ill patients found to be improved by yoga included fatigue, mood, pain, sleep quality, anxiety, depression, and health-related QoL.[14]

Exercise

Exercise used for management of cancer-related symptoms in research studies includes aerobic exercise, resistance training,
and combined aerobic exercise, and resistance training interventions. These programs were conducted in 30-45 min sessions three to four times per week over several weeks. Exercise is recommended for improving emotional well-being, health-related QoL, reducing fatigue, and improves depression. The challenge in understanding the effect of exercise on cancer-related symptoms is that the interventions are variable between studies.\[14\]

**Conclusion**

Non-pharmacological therapies, such as CAM, are for the management of cancer-related symptoms is being embraced by patients and their caregivers, and by health care specialties such as palliative and supportive care. Clinical research on Alternative and Complementary therapy in cancer care is a challenging field in oncology which will continue to provide clinically relevant observations for patients and oncologists. The evidence currently available has suggested that acupuncture is a safe and effective therapy to manage cancer and treatment related symptoms, while giving patients the ability to actively participate in their life.

The effectiveness of acupuncture or moxibustion for the prevention of cancer symptoms is variable from positive to negative. Complementary therapies are safe if implemented by trained, regulated practitioners with background knowledge of human body anatomy and potential adverse effects. The life-threatening adverse effects are quite rare. Future research recommends recruitment of clinical researchers, clinicians, and patients in applications of more and more non-pharmacological therapies toward palliative care among HNC patients. Continued efforts to construct well-designed studies that investigate non-pharmacological therapies are necessary for the continued development and acceptance of these therapies into the standard of care.

**References**


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