CLINICAL VIGNETTE

Integrative East-West Approach to Management of Chemotherapy-induced Symptoms in a Breast Cancer Patient

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Introduction

Chemotherapy while life-saving, is also cytotoxic and causes a myriad of side effects including pain, nausea, fatigue, insomnia, neuropathy, and immunosuppression. Conventional biomedicine primarily offers pharmaceuticals to treat these side effects. While this approach provides some benefit, it also carries further risk of side effects. Many patients desire additional relief and non-pharmacologic options.

In one survey, over 80% of cancer patients used at least one complementary or alternative medicine (CAM) approach, over 60% used vitamin and herbs, and about 60% used movement and physical therapies.[1] When compared to the general population, cancer survivors used CAM more often for general disease prevention, immune enhancement, and pain management. Increasing patient demand and provider interest have led to the establishment the relatively new field of integrative oncology. One clinical review describes integrative oncology as "a patient-centered, evidence-informed field of comprehensive cancer care that uses lifestyle modifications, mind-body practices, and natural products from different traditions alongside conventional cancer treatments...[it] seeks to engage patients and families as active participants in their own care from prevention throughout treatment and survivorship."[2]

We describe a patient with chemotherapy-induced and cancer-related symptoms who was successfully treated with an integrative East-West approach. We describe the practicalities of a multi-modal and person-centered approach and highlight how integrative practices can support a patient during and after cancer treatment.

Case Presentation

A 66-year-old female with history of hyperlipidemia, vitamin D deficiency, osteoporosis, pseudolymphoma, and recently diagnosed invasive ductal carcinoma of the right breast presented to East-West Medicine shortly after starting neo-adjuvant chemotherapy consisting of carboplatin and docetaxel.

At the initial visit, the patient reported significant nausea and fatigue after her first chemotherapy session. Other symptoms included hot flashes, night sweats, and worsening of her chronic neck and shoulder pain. Her review of symptoms included mild constipation and heat intolerance.

Her medication list included pravastatin, cholecalciferol, omeprazole, glucosamine-chondroitin, prochlorperazine, aprepitant, and turmeric. She took dexamethasone before and after chemotherapy sessions. Her past surgical history included strabismus surgery and cataract removal. Her family history included diabetes, hypertension, coronary artery disease, and heart failure.

Her vitals revealed heart rate of 99, without fever and normal blood pressure. Her BMI was 21.8. Pertinent physical exam findings included tenderness of the neck with trigger points of the bilateral trapezius muscles. Patient otherwise had a normal cardiac, respiratory, abdominal, skin, neurologic, and musculoskeletal exam. Pertinent labs included mild leukocytosis and slightly elevated liver enzymes. She had no evidence of cancer metastasis on imaging.

A holistic treatment plan was initiated at her first consultation visit to address her chemotherapy-induced nausea and vomiting, cancer-related fatigue, and acute chronic neck pain. The patient received acupuncture at points beneficial for nausea and fatigue including the following: Large intestine 4 and 10, Liver 3, Spleen 4 and 6, Stomach 36, Pericardium 6, San Jiao 5, and Gallbladder 41. She also received injections with 1% lidocaine at multiple trigger points along her bilateral trapezius muscles. The patient tolerated these therapies without significant side effects and returned every 2 to 3 weeks while receiving cancer treatment.

At the follow-up visits, she reported overall improvement of her nausea, vomiting, and neck pain. Her nausea was worse immediately after chemotherapy administration and seemed to improve after treatment sessions. We continued trigger point injections and added additional acupuncture points including Governing Vessel 20, YinTang, Spleen 9, and Spleen 10. Given that her symptoms were not completely controlled, we also introduced dietary recommendations. In traditional Chinese medicine, chemotherapy and radiation can create toxic heat. This excess external heat can be pathogenic, causing a pattern of symptoms including dry mouth, constipation, insomnia, and irritability. We added cooling and anti-inflammatory foods to her diet including fish, cruciferous vegetables, flax seed, nuts, and avocado. Avoiding excessive refined sugars, barbequed foods, and fried foods were also recommended. We suggested consumption of bone broth and Asian mushrooms for their

nourishing and immuno-supportive qualities. During this time, we also recommended QiGong, stress management, and avoiding overexertion.

The patient gradually improved with her self-care regimen. She was adhering to a beneficial diet, walking daily, and attending classes at the Benjamin Center, a cancer support community where she received free sessions of Feldenkrais, Tai Chi, meditation, and support groups. Her nausea and neck pain were well controlled. Although her fatigue persisted, it was less severe and shorter in duration.

Prior to her tenth visit, the patient underwent a right breast lumpectomy with sentinel lymph node biopsy without complications. There was no evidence of metastatic disease and no need for further chemotherapy. She felt great overall, with only mild fatigue after prolonged activity. She was eating more cooked and whole foods, and she reported enjoying life more. Her liver chemistries also returned to normal.

The patient underwent radiation therapy between her twelfth and fourteenth treatment sessions. She reported burning pain and inflammation at the site of radiotherapy, as well as worsening of her chronic neck and back pain given the prolonged posturing required during radiotherapy. In addition to her acupuncture and trigger point treatments, we reinforced eating more cooling foods such as watermelon, mung bean soup, chamomile and chrysanthemum teas. She used topical aloe vera for her radiation dermatitis.

After completing cancer treatment, she reported feelings of sadness and decreased mood. We emphasized self-care activities. She restarted her QiGong sessions twice weekly, and her mood and sleep improved. Her DEXA scan showed osteoporosis, and we advised light resistance training, calcium-rich foods, and bone broth. Overall, she was doing very well and consistently followed her self-care regimen. She noticed that her fatigue returned if she overexerted herself, but otherwise it was well controlled.

Discussion

Although cancer patients may have nausea and vomiting for various reasons, chemotherapy-induced nausea and vomiting (CINV) is potentially the most severe and distressing.[3] While nausea is subjective, vomiting is quantifiable and can be classified into acute, delayed, and anticipatory emesis.[4] Although not fully understood, the pathophysiology involves interactions among the central and peripheral nervous systems, gastrointestinal tract, and neurotransmitters such as dopamine, serotonin, and substance P.[5] Anti-emetic medications targeting these pathways are fairly effective and well tolerated. They are used for both prophylaxis and treatment of CINV.[6] However, symptoms can persist despite medical therapy and adversely affect quality of life for cancer patients.

There is encouraging evidence that acupuncture helps treat CINV. In a randomized controlled trial (RCT) of 150 patients with lung cancer, acupuncture combined with intravenous tropisetron demonstrated significantly fewer symptoms of CINV when compared to tropisetron alone. The acupuncture points used included Stomach 36, Conception Vessel 12, and Pericardium 6.[7] A systematic review of acupuncture for cancer care published in 2013 concluded that acupuncture is an appropriate adjunctive treatment for CINV.[8] However, eight of the included RCTs had a high level of bias, suggesting the need for higher quality studies.

Other methods such as electroacupuncture and acupressure have also been studied. A RCT of 104 women with breast cancer receiving high-dose chemotherapy found adjunct electroacupuncture was more effective at controlling emesis than minimal needling or antiemetic medications alone, although the observed effect had a limited duration.[9] One small study of 48 women with breast cancer showed decreased number and intensity of CINV symptoms in those receiving auricular acupressure plus medication when compared to those receiving medication alone.[10] A Cochrane review concluded overall efficacy of acupuncture-point stimulation in treating CINV, but the authors did note that some studies did not have a placebo control and used novel anti-emetic medications.[11]

Other complementary therapies may help with CINV as well. Ginger supplements may help reduce nausea during chemotherapy, although the evidence is mixed. A large RCT of 744 patients suggested that ginger supplementation significantly reduced acute nausea during the first day of chemotherapy cycles, with the largest reductions seen in the 0.5 and 1.0 gram doses.[12] Other non-pharmacologic methods with limited evidence for CINV include cognitive distraction, systematic desensitization, exercise, hypnosis, and transcutaneous nerve stimulation.[13]

Cancer-related fatigue (CRF) is another common condition in cancer patients. Most cancer patients experience some level of fatigue during treatment with about one-third having persistent fatigue which can last for a number of years after treatment.[14,15] Fatigue is often under-reported and adversely affects quality of life during and after treatment. Contributing factors to CRF include specific cancer treatment, tumor growth, unrelieved pain, anemia, poor nutrition, metabolic issues, hormonal issues, underlying comorbidities, medication side effects, physical deconditioning, depressed mood, emotional distress, and sleep disturbance.[16] Those with CRF should have a thorough evaluation and correction of any underlying contributing factors. For example, medical treatment includes blood transfusions and erythropoietin-stimulating agents to treat anemia. For severe fatigue without improvement, psychostimulants and wakefulness agents such as methylphenidate, dexmethylphenidate, or modafinil can be used.[17] However, because CRF involves mental, physical, and nutritional aspects, integrative approaches can be effective and should be attempted first when no obvious reversible cause can be identified.

Acupuncture and acupressure may play a role in treating CRF. A large RCT of 302 outpatients with breast cancer who received

acupuncture had statistically significant improvements in physical fatigue, mental fatigue, anxiety, depression, quality of life, functional well-being, and social well-being when compared to the usual care group.[18] The particular acupuncture points included Stomach 36, Spleen 6, and Large Intestine 4, with alternate points such as Gallbladder 24 and Spleen 9. One RCT of 424 breast cancer survivors who completed cancer treatment demonstrated that both relaxing and stimulating acupressure reduced persistent CRF compared with usual care, although only the relaxing acupressure had significant effects on sleep quality and quality of life.[19] For reference, the relaxing points consisted of YinTang, AnMian, Heart 7, Spleen 6, Liver 3, while the stimulating points consisted of Governing Vessel 20, Conception Vessel 6, Large Intestine 4, Stomach 36, Spleen 6, and Kidney 3. One systematic review included RCTs published in English and Chinese in 18 databases. Although the results were inconclusive, acupuncture and acupressure appear effective in treating CRF, with acupuncture being more effective.[20] A similar meta-analysis reviewing 10 RCTs reported the efficacy of acupuncture in reducing CRF, especially in breast cancer patients and those undergoing cancer treatment.[21] A different systemic review and meta-analysis suggested that acupuncture and moxibustion appears effective for CRF, although higher-quality RCTs need to be done, particularly for moxibustion.[22]

Other non-pharmacologic treatment options for CRF include exercise, diet, and mindfulness-based techniques. For adult cancer survivors with fatigue, the American Society of Clinical Oncology recommends 150 minutes of moderate aerobic exercise per week with additional 2-3 sessions of strength training weekly if tolerated.[16] A Cochrane review of 56 RCTs concluded that exercise was significantly more effective than controls in reducing symptoms of CRF during and after cancer treatment. Aerobic exercise significantly reduced CRF, while resistance training and other forms of exercise did not.[23]

In addition to an anti-inflammatory and healthy diet, particular foods may help CRF. RCTs of Wisconsin Ginseng and Korean red ginseng exhibited reductions of CRF symptoms when compared to placebo.[24,25] However, caution should be used due to the potential drug interactions of ginseng. Reishi mushrooms have been widely recommended by integrative physicians and naturopaths for its immuno-supportive effects. A Cochrane review involving 5 RCTs comparing Reishi mushrooms to active or placebo controls found that Reishi mushrooms improved host immune indicators including increased CD3, CD4, and CD8 percentages, as well as marginally increased leukocytes and NK-cell activity. Four studies showed relatively improved quality of life for the Reishi mushroom groups when compared to control groups.[26] The current evidence does not support multivitamin supplementation for reducing symptoms of CRF.[27]

Mind-body and stress-reduction techniques may help as well. A RCT of 229 breast cancer survivors compared mindfulness based stress reduction (MBSR) to standard care. Compared to the control group, the MBSR group experienced increased vigor and reduced fatigue, total mood disturbance, anger, and confusion.[28] In this study, the MBSR program was 8 weeks long and included mindfulness practices such as body scan, yoga-based stretches, sitting meditation, group discussions, didactic teaching, and home practice on topics such as perception and reactions to life effects. A large, multi-center RCT comparing yoga to standard care found yoga participants had greater improvements in global sleep quality and reduced sleep medication use.[29] TaiChi and QiGong have also been evaluated. One RCT of 87 post-menopausal breast cancer survivors with fatigue showed that QiGong/TaiChi participants had significantly decreased fatigue when compared to sham Qi Gong. However, depression and sleep quality measures were not improved.[30] A systematic review and meta-analysis of 13 RCTs found QiGong/TaiChi in cancer patients had positive effects on quality of life and immune function, as well as decreased cortisol levels. However, the studies were limited in size and had a high risk of bias.[31]

Given the increasing interest of integrative approaches, cancer organizations have created recommendations to guide patients and providers. The American College of Chest Physicians found several complementary therapies helpful for treating anxiety, mood disturbance, pain, treatment-related side effects, and supported the overall care and quality of life in lung cancer patients.[32] The Society of Integrative Oncology developed an evidence-based guideline on use of integrative therapies before and after breast cancer treatment.[33] Key recommendations included: acupressure and acupuncture for reducing chemotherapy-induced nausea and vomiting; music therapy, mediation, stress management and yoga for anxiety/stress reduction and treatment of depression/mood disorders; meditation and yoga to improve quality of life. There was insufficient evidence to support dietary supplements in managing treatment-related adverse effects.

Conclusion

Our patient benefited from an integrative East-West approach in managing her cancer-related and chemotherapy-related symptoms during and after cancer treatment. Although higher quality studies with more statistical power are needed, the current evidence regarding integrative therapies in supporting patients through cancer treatment is promising.

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