

# Traditional Chinese medicine in the treatment of symptoms in patients with advanced cancer

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**Abstract:** Patients with advanced malignancies are often suffered from deficient vital qi, which is clinically presented as cancer-related pain, anorexia, nausea/vomiting, fatigue, fever, indigestion, and constipation, which severely lower the quality of life and even shorten the survival of these patients. Traditional Chinese medicine (TCM) has a long history and rich experiences in treating malignancies. In addition to surgery, radiotherapy, chemotherapy, and other modern therapies, the TCM-based treatment can dramatically alleviate the clinical symptoms and improve the quality of life. This article analyzes the TCM treatment for the cancer pain, nausea/vomiting and cancer-related fatigue in patients with advanced malignancies, and the TCM-based emotional care for these patients are also discussed.

**Key Words:** Traditional Chinese medicine (TCM); advanced cancer; quality of life; pain; anorexia; nausea; vomiting; fatigue; fever; indigestion; constipation



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## Introduction

The various malignant tumors can occur at different locations and result in complicated conditions in their advanced stages. About 80% of cancer patients are diagnosed at advanced stages and therefore are not eligible for surgery or radio-chemotherapy. Advanced cancer patients will experience physical wasting; also, due to the effect of vicious toxins, the patients can develop systemic metabolic disorders and then cachexia. Along with the invasion and distant metastasis of tumors in the surrounding tissues and organs, the patients can develop various complicated symptoms, which can even be fatal. From the perspective of TCM, tumor is not only the morphological changes of a specific tissue or organ but also, and more importantly, the functional changes of tissues or organs. The pathological changes of tumors are clinically presented as dampness, toxin, phlegm, stasis (obstruction), and deficiency. Therefore, from the perspective of TCM, the mechanism of tumor can be summarized as: stagnation of toxin and heat, obstruction

of phlegm/dampness, Qi stagnation and blood stasis, and imbalanced yin and yang in viscera and bowels. Patients often have the dysfunction of viscera and bowels (e.g., deficiency in liver, spleen, and kidney) and deficiency of the original qi. In addition, pathological changes can also occur due to the emotional impairment. The imbalance between yin and yang in viscera and bowels can be particularly obvious in patients with advanced cancers. According to the ancient Chinese physicians, the development of tumors is often associated with the dysfunction of viscera and bowels, particularly the spleen and kidney deficiencies. Kidney is the root of innate endowment, and spleen is the root of acquired constitution. Spleen and kidney deficiencies can result in the weak healthy qi, and the insufficient defense qi can not prevent the invasion of pathogen. If the healthy qi can not effectively eliminate the pathogen, it will easily spread inside body. As mentioned in the classic books, “When there is sufficient health qi inside, the pathogenic qi have no way to invade the health body”; or, “Where pathogenic factors accumulate, the parts of the body must be deficient in the vital-qi”.

TCM has a long history and rich experiences in treating malignancies. The initial step is to enhance the healthy qi, so as to improve tumor-bearing survival by preventing disease progression and alleviating symptoms. The largest difference between TCM and modern medicine in terms of efficacy is: after TCM treatment, the tumor does not shrink remarkably, but the patient has longer survival and dramatically improved subjective symptoms; after treatment with modern therapies, on the contrary, the tumor may obviously decrease in size but can recur rapidly, along with unprolonged survival and impaired quality of life. TCM is based on holism, focusing on the macro-regulation of the patient's physiological functions. Pattern identification is a featured and essential concept in TCM. In fact, it refers to the identification of the internal environment of an imbalanced human body. The fundamental purpose of TCM treatment for tumors is to restore the balance of the internal environment by adjusting the internal environment, enhancing the anti-pathogen capability, so as to inhibit the growth and metastasis of tumors (1). It is particularly important to replenish the healthy qi and strengthen the body resistance for patients with advanced malignancies. On the basis of pattern identification, it is important to use traditional Chinese drugs that are capable of reinforcing the healthy qi, strengthening the body resistance, and treating wasting/deficiency to adjust the yin/yang/qi/blood of human body and the physiological function of organs and meridians, so as to improve the quality of life, enhance the inherent disease resistance, adjust immune function; by doing so, the TCM treatment may help the cancer patients to strengthen the general conditions, remove the disease/pathogen, inhibit tumor progression, alleviate symptoms, and prolong survival (2).

Patients seeking for TCM treatment are often in the advanced stages or have experienced relapses, and often have already received surgical treatment and multiple radio-chemotherapies. For these patients, any treatment is not able to eliminate the tumors. The treatment priorities have become how to relieve the patient's pain, improve quality of life, and prolong survival. A prolonged survival should be based on the improved quality of life. Without satisfactory quality of life, the so-called "prolonged survival" has limited value. While the vast majority of patients with advanced malignancies have strong desire to survive, they suffer from both physical and psychological pain during the treatment. These patients often suffer from deficient vital Qi, which is clinically presented as cancer-related pain, anorexia, nausea/vomiting, fatigue, fever, indigestion, and constipation,

which severely lower the quality of life and even shorten the survival of these patients. Fortunately, TCM has shown good efficacy in symptomatic treatment. In this article, we will discuss the role of TCM treatment in alleviating three major symptoms and improving the overall quality of life in patients with advanced malignancies; also, we will elucidate the TCM-based emotional care for these patients.

### Cancer symptoms in TCM

Cancer symptoms in TCM refer to the pain or discomfort felt by the patients themselves and the signs/conditions that can be identified after examinations. The "symptom" is the individual objective phenomenon arising from and accompanying a disease or other pathological condition. Any disease or syndrome has its specific symptoms. The clinicians must carefully analyze all symptoms before making a diagnosis. As a major feature of the TCM palliative care, the clinicians must elucidate the mechanism, clinical features, and diagnostic method of a specific symptom (particularly, the major symptom) to differentiate diseases and syndromes and treat them accordingly. Ten common symptoms of cancer have been proposed (3): pain, nausea/vomiting, loss of appetite, constipation, fever, diarrhea, bloating, pressure ulcers, depression/anxiety, and sleep disorders. Alternatively, 36 common symptoms of cancer have been categorized: infection, difficulty swallowing, nausea/vomiting, anorexia, dry mouth, constipation, diarrhea, intestinal obstruction, ascites, malnutrition, coughing, breathing difficulties, hiccough, flu-like syndrome, urinary tract infections, urinary incontinence, headache, anxiety, insomnia, delirium, convulsions, anxiety, depression, thrombosis, disseminated intravascular coagulation, anemia, edema, hypercalcemia, spasms, pimple rash, fatigue, muscle atrophy, thrush, massive bleeding, acute pain, and suffocation. Meanwhile, these common symptoms of cancer are classified into the following diseases according to TCM classifications: loss of consciousness, convulsions, blood syndromes, cough, asthma disease, pleural fluid retention, vomiting, hiccough, dysphagia-occlusion, constipation, diarrhea, mouth sores, strangury disease, urinary incontinence, palpitations, insomnia, coma, abdominal retention, headache, consumptive disease, edema, and fever due to internal injuries. The classifications slightly differed among different ancient Chinese physicians. For instance, Li Yan (4) divided the common symptoms into 41 types for pattern identification. His detailed descriptions for these symptoms

were highly informative for clinical practices. Identification and treatment of the major symptoms is an essential component and also the basis of pattern identification.

TCM-based pattern identification has shown great advantages in controlling cancer symptoms. During the symptomatic treatment, it can manage both the systemic conditions and local symptoms. After treatment based on pattern identification, the cancer symptoms and quality of life were improved in about 70% of patients with advanced cancers (5). According to a data from Shanghai Medical University (6), the 1-3-month symptom response rate after TCM treatment among patients with advanced liver cancers were as follows: upper abdominal fullness, 82.4%; anorexia, 72.6%; weight loss, 70.6%; liver pain, 46.2%; and fatigue, 62.7%. The 1-year survival was 10.8% in the TCM group and only 0.8% in the control group ( $P < 0.05$ ). In some patients with isolated and small liver tumors, the survival could be as long as over ten years after the application of spleen-nourishing and qi-regulating therapies.

According to Yu Er-xin from Shanghai Medical University Cancer Hospital, three principles may be applied in controlling cancer symptoms: (I) To investigate the regular pattern of cancer symptoms. According to the TCM theory, the rhythmical symptoms are related with the 24-hour rhythm. The common cancerous fever and pain often shows such a rhythm; (II) To use drugs on time (rather than “when required”) according the regular pattern of cancer symptoms. The medication should be changed when the symptom rhythm changes. For example, if the cancerous fever occurs at 14 p.m., the medication may be scheduled at 12 or 13 p.m., so as to achieve a good symptom control; And, (III) the symptoms and their rhythms may be altered along with the treatment and with tumor progression. Once new rhythm is found, the medications should be adjusted accordingly. In summary, the TCM-based symptomatic treatment is proactive. A passive or perfunctory attitude towards symptomatic treatment should be avoided. The aim of symptomatic treatment is to alleviate the symptoms and help the patients rest and work as a normal person. In addition to surgery, radiotherapy, chemotherapy, and other modern therapies, the TCM-based treatment can dramatically alleviate the clinical symptoms and improve the quality of life.

### TCM improves pain

According to World Health Organization (WHO), an estimated 10 million people were newly diagnosed with

cancer across the world and about 6 million people die from cancer. Notably, about 50% of these patients had cancer-related pain symptoms, and up to 70% of patients with advanced cancers with pain as their major symptom. About 50-80% of patients with pain did not have their pain effectively controlled due to various reasons (7). Thus, cancer pain has seriously affected the quality of life in patients with advanced cancer. Cancer pain has become the most horrific clinical manifestation for the majority of patients with cancer, particularly among those with advanced diseases. The cancer pain causes or aggravates other symptoms including loss of appetite, insomnia, weakness, forced posture, and bedsores in these patients. Compared with other symptoms, pain is more likely to cause emotional disorders. Proper and timely treatment of pain is helpful to improve the behavioral status and provide the required conditions for the treatment of primary disease. The three-step “ladder” for cancer pain relief developed by WHO has been widely accepted. If the proper drugs are appropriately used in terms of types, dosage, interval, and route, about 90% of cancer pain can be satisfactorily controlled. Therefore, medical therapy has widely accepted as the key approach for resolving cancer pain. However, cancer pain has never been well controlled due to various reasons. Even in the developed countries, 50-80% of cancer pain was not alleviated. Furthermore, although the three-step “ladder” strategy has been proven to be effective, the adverse effects (e.g., addiction and tolerance) of narcotics limit their usage. In recent years, TCM-based treatment for cancer pain has witnessed great advancement in laboratory experiments and clinical practices.

From the perspective of TCM, the etiology and mechanism of cancer pain can be categorized as “stagnation” and “cachexia”, which are presented as two syndromes-“excess” and “deficiency”. Nevertheless, there is no absolute difference between them. The development of cancer pain, in nature, is resulted from the interaction of multiple factors. Also, the mechanism of disease differs in the different phases and stages of tumors, and the “excess” or “deficiency” may clinically manifested in a diverse or mixed manner. In general, the cancer pain is mainly “excess pain” in the early and middle stage of a tumor and “deficiency pain” or “mixed pain” in the advanced stages. The clinical treatment should be based on the mechanism of the cancer pain, rather than just for relieving pain. Also, the drugs or therapies should be applied in a flexible way. In short, the principles of TCM treatment for cancer pain fundamentally differ from those of western medicine. The

Table 1 Traditional Chinese medicine classical formulas and empirical formulas for the management of cancer pain	
Formulas	Main traditional Chinese drugs
Classical formulas	
Liu Junzi Tang (11)	<i>Codonopsis pilosula</i> , <i>Atractylodes macrocephala</i> koidz, poria, <i>Pinellia ternata</i> , <i>Pericarpium citri reticulatae</i> , <i>Citrus aurantium</i> , <i>Magnolia officinalis</i> , <i>Salvia miltiorrhiza</i> , leeches, centipedes, and prepared <i>Nux vomica</i>
Xiao Jian Zhong Tang (12)	<i>Ramulus cinnamomi</i> , <i>Rhizoma corydalis</i> , <i>Glycyrrhiza uralensis</i> , <i>Radix paeoniae alba</i> , <i>Dioscorea opposita</i> Thunb, <i>Salvia miltiorrhiza</i> , ginger, <i>Ziziphus jujuba</i> , and malt syrup
Shaoyao Gancao Tang (13)	<i>Radix paeoniae alba</i> , <i>Hedyotis diffusa</i> , <i>Pinellia ternata</i> , <i>Radix clematidis</i> , <i>Herba Asari</i> , centipedes, <i>Glycyrrhiza uralensis</i> , and <i>Gallus gallus</i>
Xuefu Zhuyu Tang (14)	<i>Semen persicae</i> , <i>Carthamus tinctorius</i> , <i>Angelica sinensis</i> , <i>Radix rehmanniae</i> , <i>Rhizoma chuanxiong</i> , <i>Radix Paeoniae rubra</i> , <i>Achyranthes bidentata</i> , <i>Platycodon grandiflorum</i> , <i>Radix bupleuri</i> , <i>Citrus aurantium</i> , and raw licorice; for patients with qi vacuity with blood stasis, <i>Codonopsis pilosula</i> , <i>Radix astragali</i> , <i>Atractylodes macrocephala</i> , and poria should be added; and for patients with dual deficiency of qi and yin, <i>Codonopsis pilosula</i> , <i>Ophiopogon japonicus</i> , and <i>Schisandra chinensis</i> should be added.
Empirical formulas	
Ding Tong Tang (15)	<i>Panax notoginseng</i> , <i>Salvia miltiorrhiza</i> , <i>Rhizoma corydalis</i> , <i>Radix linderae</i> , <i>Paris chinese</i> Franch, <i>Rhizoma paridis</i> , <i>Dioscorea bulbifera</i> L, <i>Cremastra appendiculata</i> , and <i>Semen coicis</i>
Xiao Tong Fang (16)	Lily, <i>Caulis dendrobii</i> , <i>Folium isatidis</i> , <i>Acorus tatarinowii</i> Schott, <i>Squama manitis</i> , <i>Rhizoma corydalis</i> , <i>Cynanchum paniculatum</i> , <i>Flos caryophylli</i> , <i>Rhizoma arisaematis</i> , <i>Radix linderae</i> , <i>Radix Aconiti preparata</i> , and <i>Herba asari</i>

TCM treatment, from the perspective of holism, trace the etiology by syndrome differentiation, treat based on syndrome differentiation and in accordance with three categories of etiologic factors, and thus realize the targets of “strengthening healthy qi to eliminate pathogens and treating both the symptoms and pathogens”. Since TCM treatment for cancer pain has mild side effects and will not result in addiction, and some traditional Chinese drugs can shrink tumor size, they have been warmly welcomed by cancer patients. For example, Liu (8) used topical Toad venom extract to treat 117 patients with cancer pain. The effectiveness rate reached 92.65%, and the pain-relieving effect typically seen within 15–30 min. Also, he used Xiaozhong Zhitong plaster (topical cream for alleviating swelling and pain) to treat 300 patients with cancer pain, and the effectiveness rate was 75.7% for severe pain, 90.7% for moderate pain, and 96.7% for mild pain.

Wu (9) used traditional Chinese drugs together with the 3-step “ladder” approach to treat the advanced colorectal cancer in 178 cases. Step one: regulating qi to stop level I pain, using prescriptions including Chaihu Shugan powder, Tiantai Wuyao powder, Jinlingzi powder; step two: removing stasis to stop level II pain, using prescriptions

including Taohong Siwu decoction; and step three: detoxing to stop level III pain, using prescriptions including Gexiazhuyu decoction and Xinfang Huoming decoction. The total response rate reached 86.1%. Wang (10) treated cancer pain using drugs including *Rehmanniae* 18 g, *Scrophulariaceae* 18 g, *Radix Asparagi* 18 g, honeysuckle 18 g, forsythia 18 g, Red peony 30 g, Cortex moutan 30 g, *Radix isatidis* 30 g, and gypsum 30 g, which were decocted and administered together with centipede (n=4, powdered) and buffalo horn powder 20 g. The prescription was taken one dose (twice) per day, which achieved highly effective (the patients did not experience obvious pain after the withdrawal of other analgesics) in 19 cases, effective in 36 cases, and ineffective in 13 cases, yielding a total response rate of 81.4%. The therapy typically became effective within 1–3 days. *Table 1* lists the common prescriptions for treating cancer pain.

Plaster therapy is another traditional therapy. Typically, traditional Chinese drugs with penetrating and strong odors are applied together with a medium (or added with transdermal agent). The medium can be water, vinegar, wine, bile, oil, honey, petrolatum, or glycerin. The transdermal agents include azone, which is most often

used, propylene glycol, urea, and dimethyl sulfoxide. The common drugs included Radix aconiti, Radix aconiti kusnezoffii, Asarum, borneol, Angelica dahurica, Dragon's Blood, mastic/myrrh, Rhizoma corydalis, Arisaema amurense maxim, peach kernel, safflower, ferula, Semen strychni, realgar, alum, indigo, musk, Venenum bufonis, pangolin, cantharides, and centipede. Plaster therapy has shown ideal effectiveness in treating cancer pain. For example, Han (17) used raw Capcjasmine 30 g, Radix aconiti 15 g, Faeces trogopterori 15 g, leech 15 g, eupolyphaga 15 g, gecko 15 g, Dioscorea bulbifera L 15 g, Semen strychni 15 g, centipede 8 g, camphor 8 g, and borneol 8 g for treating cancer pain. The drugs were powdered, mixed with vinegar, and then applied in the center of painful area, which was a bit larger than the pain area. The acupoints were selected according to the disease causes. Sustained, good analgesic effect was achieved, particularly for chest pain and rib pain. The total response rate was 81.8% (100% for mild pain, 81.8% for moderate pain, and 66% for severe pain). Clinical practices have demonstrated that TCM therapies can not only alleviate the cancer pain but also minimize the toxicity of anesthetic drugs by reducing or avoiding the use of these drugs.

In addition to traditional Chinese drugs, acupuncture also has a good effect on cancer pain. According to TCM theories, “unblocking the meridian/channel and regulating qi/blood” is the key to resolving pains including cancer pain. The acupoints should be carefully selected and coordinated according to the clinical symptoms/signs. Li (18) treated 113 patients with different types of cancer pain using acupuncture together with WHO 3-step “ladder” approach. Compared with the medication group (response rate: 50.00%), the acupuncture group has a significantly higher response rate (72.95%), yielding an overall response rate of 95.24%.

### TCM improves nausea/vomiting

According to TCM, vomiting occurs when stomach loses its harmony and downbearing. The gastric disorders due to any reason can cause the stomach qi ascending counterflow, which is presented as vomiting (19). Vomiting can be the complications or associated symptoms of malignancies including gastrointestinal tumors and intracranial space-occupying masses. Cancer patients upon chemotherapy can also experience nausea or vomiting, which can result in or be accompanied with decreased appetite, malnutrition, low immunity, and increased cachexia. This condition

can decrease the patients' quality of life, shorten their survival, and even be fatal. TCM-based therapies can improve chemotherapy-associated nausea/vomiting by “strengthening vital qi and consolidating the constitution”, “fortifying the spleen and resolving dampness”, “regulating qi and resolving phlegm”, “warming stomach and relaxing the bowels”, and “regulating stomach and calming down the adverse-rising energy”.

Chemotherapy drugs can induce nausea and vomiting, which is mainly because these drugs can directly impair the spleen and stomach, and thus affect their transportation capabilities. The key mechanisms include damage to the spleen and stomach, exhausted healthy qi, abnormal transportation, and disordered gastric harmony and downbearing. Clinically the treatment principles include “fortifying the spleen and replenishing qi” and “harmonizing the stomach and downbearing counterflow”. Yang *et al.* (20) applied prescriptions targeting “fortifying spleen and resolving dampness” and “harmonizing stomach and stopping vomiting” for patients upon chemotherapy. These prescriptions successfully lowered the incidence of vomiting. Chen (21) used Xiaobanxia decoction that is able to fortify spleen, harmonize stomach, resolve dampness, and stop vomiting to treat symptoms related with disordered spleen and stomach such as vomiting, loss of appetite, and pale tongue, and the therapeutic effectiveness was satisfactory. Based on the principles of pattern identification, Dou *et al.* (22) divided the chemotherapy-related vomiting into several types: the type of “spleen-stomach vacuity weakness” was treated with Liujunzi decoction and other drugs; the type of “qi & yin dual vacuity” was treated with modified Radix Ophiopogon decoction and Orange peel-Caulis bambusae decoction; the type of “liver qi invading the distension stomach” was treated with modified Chaiping decoction; the type of “phlegm-dampness retention” was treated with modified Linggui-Zhugan-Xiaobanxia decoction; and the type of “spleen-kidney yang deficiency” was treated with Guifu Li Zhong decoction. Qian (23) found that the modified Xuanfu Daizhe decoction combined with 5-HT<sub>3</sub> receptor antagonist was superior to 5-HT<sub>3</sub> receptor antagonist alone in treating chemotherapy-associated gastrointestinal reactions such as nausea and vomiting. The common orally administered TCM prescriptions are listed in *Table 2*.

The tropical application of traditional Chinese drugs is rapid, simple, and safe, and therefore has many advantages in preventing and alleviating chemotherapy-induced vomiting. Currently, the common tropical therapies for

**Table 2** Traditional Chinese medicine classical formulas for treating nausea/vomiting

Common formulas	Source	Ingredients
Xiao Banxia Plus Fuling Decoction (24,25)	<i>Essential Prescriptions of the Golden Coffe</i>	<i>Rhizoma pinelliae praeparatum</i> , ginger and poria
Xiao Banxia Tang (26,27)	<i>Essential Prescriptions of the Golden Coffe</i>	Prepared <i>Pinellia ternate</i> and ginger
Banxia Xiexin Decoction (28,29)	<i>Cold Damage</i>	<i>Pinellia ternata</i> , <i>Scutellaria baicalensis Georgi</i> , <i>Rhizoma zingiberis</i> , ginseng, licorice, <i>Rhizoma coptidis</i> , and <i>Ziziphus jujuba</i>
Xuanfudaizhe Decoction (30,31)	<i>Cold Damage</i>	<i>Inula japonica</i> , <i>Rhizome pinelliae preparata</i> , <i>Codonopsis pilosula</i> , ginger, ruddle, malt, <i>Radix glycyrrhizae preparate</i> , and <i>Ziziphus jujuba</i>
Wendan Decoction (32,33)	<i>Treatise on Three Categories of Pathogenic Factors</i>	Poria, <i>Pericarpium citri reticulatae</i> , <i>Pinellia ternata</i> , licorice, <i>Fructus aurantii immaturus</i> , <i>Caulis bambusae</i> , ginger slice, and <i>Ziziphus jujuba</i>
Shenlingbaizhu Powder (34,35)	<i>Tai-Ping Imperial Grace Pharmacy Formulas</i>	<i>Codonopsis pilosula</i> , poria, <i>Atractylodes macrocephala koidz</i> , <i>Semen coicis</i> , <i>Amomum villosum</i> , <i>Radix glycyrrhizae preparate</i> , <i>Platycodon grandiflorum</i> , Chinese yam, <i>Dolichos lablab L</i> , <i>Pericarpium citri reticulatae</i> , <i>Rhizome pinelliae preparata</i> , lotus seed, and <i>Ziziphus jujuba</i>
Xiangsha Liujunzi Decoction (36,37)	<i>Treatise on Ancient and Modern Famous Formulas</i>	<i>Rhizoma pinelliae praeparatum</i> , prepared <i>Pericarpium citri reticulatae</i> , poria, <i>Codonopsis pilosula</i> , fried <i>Atractylodes macrocephala koidz</i> , malt, <i>Semen coicis</i> , <i>Flos caryophylli</i> , <i>Radix glycyrrhizae preparate</i> , ginger, and <i>Ziziphus jujuba</i>

vomiting include acupuncture, acupoint injection, auricular acupressure, acupoint plaster therapy, and moxibustion. Meridians/collaterals/acupuncture points and acupuncture theories are the basis for the tropical TCM therapies. The tropical TCM therapies for chemotherapy-induced vomiting are usually applied in meridians, collaterals, acupoints including stomach meridian, spleen meridian, large intestine meridian, and conception vessel, with an attempt to mediate meridians and vessels, enhance the essential roles of meridians for “connecting organs and limbs”, and thus achieve the goal of “adjusting organs’ qi, harmonizing stomach, and downbearing counterflow” Peng *et al.* (38) observed 60 patients undergoing PE chemotherapy and found patients in the treatment group using conventional antiemetic method plus Zu Sanli acupoint block had remarkably milder gastrointestinal reactions than the conventional antiemetic group. Wu *et al.* (39) treated the chemotherapy-induced gastrointestinal adverse reactions by Zu Sanli and Shou Sanli acupoints injection with metoclopramide injection, vitamin B injection and vitamin D2 and calcium colloidal injection. Upon the dual stipulation of drugs and acupoint stimulation, the overall response rate reached 87.5%. As mentioned in *The Songs of Four Major Acupoints*, “the abdominal diseases are related with Zu Sanli”. Zu Sanli is the acupoint where the stomach meridian connects. With the capabilities of

“invigorating the stomach and harmonizing the middle” and “treating counterflow and regulating qi”, it is a key acupoint for stopping vomiting. Fan (40) found that blocking the bilateral Neiguan with Vit B1 and vitamin B6 injections and acupuncture of Zhongwan, Jianli, bilateral Neiguan, and Shenmen could effectively treat chemotherapy-induced vomiting.

### TCM improves cancer-related fatigue

From the perspective of TCM, fatigue is a condition reflecting the Yin and yang imbalance due to the damaged physiological balance of “calm yin and sound yang” by a particular pathogen. It is often disease-related. Cancer-related fatigue is a subjective feeling of weakness and tiredness. The disease-related fatigue can be classified as “consumptive disease”. Consumptive disease is a general term for chronic deficiency diseases due to consumption of yin, yang, qi and blood. It is roughly equal to the chronic wasting diseases (e.g., advanced tumors) in modern medicine. However, there is no corresponding TCM term for cancer-related fatigue, which can be treated as a consumptive disease based on its clinical manifestations including weakness, tiredness, depression, lethargy, and gloominess. Clinically it can be divided into four types:

syndrome of qi and blood deficiency, syndrome of weak spleen and stomach, syndrome of liver and stomach disharmony, and syndrome of Qi and blood stagnation (Table 3). Based on the principles of “pattern identification” and “treating different disease with the same therapy”, the TCM therapies apply the combined approaches including “tonifying qi and activating blood”, “strengthening spleen and harmonizing stomach”, “soothing the liver and regulating qi”, “directing qi downward to stop vomiting”, “activating blood and resolving stasis”, and “removing toxin and fighting against cancer” to alleviate symptoms and improve the patients’ quality of life. Meanwhile, fatigue is not only a physical problem; rather, it is involved with obvious emotional, psychological and social consequences. Furthermore, the mental and emotional depression is often more common than the physical presentation. Therefore, psychotherapy is particularly important for the patients and even their care providers.

Many cancer patients experience fatigue due to senility, mental disorders, qi/blood stagnation, and spleen/stomach weakness (41), whereas repeated surgery, chemotherapy, and multiple chemotherapy cycles may make the patients become qi/blood deficiency and thus suffer from increased fatigue. Qi *et al.* (42) found that TCM-based adjuvant therapy can not only delay tumor progression and enhance immune function but also enhance the sensitivity to chemotherapy, reduce the chemotherapy-induced side effects (e.g., gastrointestinal symptoms such as diarrhea, nausea, and vomiting and respiratory infections), and protect liver function, so as to alleviate radiotherapy or chemotherapy-induced fatigue. Chen (43) divided 60 breast cancer patients into intervention group and control group. The intervention group received Buzhong Yiqi decoction as adjuvant therapy, which showed remarkably better effectiveness than the control group in alleviating cancer-related fatigue, which may be explained by the fact the TCM diet can not only meet the nutritional requirements but also alleviate cancer-related symptoms and treat-induced adverse reactions. Xu *et al.* (44) integrated the TCM and western medicine including self-acupressure and abdominal breathing training for the management of 80 patients who had undergone modified radical mastectomy, and the results showed that the integrated management could effectively alleviate cancer-related fatigue.

In recent years, some active extracts of traditional Chinese drugs have been applied in the clinical management of cancer-related fatigue: (I) Ginseng: a Mayo Clinic research group reported in the ASCO annual

meeting that ginseng contains saponins, the steroid-like compounds, which are helpful to ease the sense of fatigue; (II) Acanthopanax: Guan *et al.* (45) confirmed that the eleutherosides and other extracts of acanthopanax showed exciting effect in the mouse rope-climbing test, with the exciting unit ranging from 2,000 to 8,000. Acanthopanax can promote the biosynthesis of protein and DNA-RNA and prevent the decrease of protein and nucleic acid synthesis; (III) Shengmai and Shenqi injections: Gu *et al.* (46) used Shengmai and Shenqi injections to treat cancer-related fatigue. Shenqi Fuzheng injection, with *Codonopsis pilosula* and *Radix astragali* as the main raw material, can tonify qi, restore deficiency, and enhance immunity. The Shengmai Injection contains *Codonopsis pilosula*, *Schisandra chinensis*, and *Ophiopogon japonicus*. It can nourish yin and restore pulse. *Codonopsis pilosula* can tonify and replenish the middle qi and regulate the spleen and stomach. Modern pharmacological experiments have proved that the polysaccharides from *Radix codonopsis* can promote the formation of thymic T lymphocytes. *Schisandra chinensis* can excite the nerve center, make the tired brain waves return normal, improve the intellectual activity and endurance, and enhance the human body’s defense against the non-specific stimuli; (IV) Tanshinone: Ge *et al.* (47) found that the tanshinone injection had good effectiveness in treating cancer-related fatigue. Tanshinone can promote the rapid oxidation of nicotinamide adenine dinucleotide (NADH) in mitochondria and thus alleviate the accumulation of injury factors (e.g., the inhibition of glycolysis, suppression of citric acid cycle, excessive production of oxygen free radicals, and sodium lactate accumulation) due to the deposition of NADH.

### TCM improves the general conditions

For advanced cancer patients who are not eligible for surgery, radiotherapy, or chemotherapy and those who are only eligible for symptomatic palliative radio-chemotherapy, TCM-based pattern identification and anti-tumor treatment must be carefully scheduled to improve the general symptoms/signs, enhance the immunity, and maintain the tumor in a stable status. For example, the spleen-fortifying and qi-regulating prescriptions can relieve abdominal pain; yin-fortifying and qi-replenishing medicinals can enhance the immunity; heart-nourishing, tranquilizing, liver-soothing, and qi-regulating medicinals can adjust the mental status, improve sleep, and reduce the occurrence of depression; *Brucea javanica* cream can

**Table 3** TCM determined treatment on the basis of pattern types for cancer-related fatigue

Syndrome type	Main TCM clinical symptoms	Common formulas	Common drugs
Syndrome of dual deficiency of qi and blood	Fatigue, spontaneous sweating, panting on exertion, scant qi, laziness to speak, palpitations, insomnia, dizzy head and vision, and pale or withered yellow complexion. The patient has pale tongue, plump tongue (with scalloped edges), and thready and weak pulse	Modified Guipi Decoction plus Shiquan Dabu Decoction	<i>Radix astragali preparata</i> , <i>Codonopsis pilosula</i> , fried <i>Atractylodes macrocephala</i> Koidz, Chinese yam, <i>Radix rehmanniae preparata</i> , donkey-hide gelatin, <i>Radix paeoniae alba</i> , <i>Semen coicis</i> , <i>Angelica sinensis</i> , <i>Ligusticum chuanxiong</i> Hort, <i>Salvia miltiorrhiza</i> , <i>Agrimonia pilosa</i> Ledeb, fried <i>Fructus aurantii</i> , <i>Fructus setariae germinatus</i> , malt, <i>Radix glycyrrhizae</i> preparate, etc
Syndrome of spleen-stomach weakness	Fatigue, reduced food intake, nausea, belching, acid swallowing, unformed stool, dizziness, and fear of cold/cold extremities; in severer patients, puffy face and swollen limbs may be observed. The patient has mildly plump tongue and deep and thready pulse	Modified Shenlingbaizhu Powder and Yougui Pill	<i>Radix pseudostellariae</i> , fried <i>Atractylodes macrocephala</i> Koidz, poria, <i>Rhizome pinelliae preparata</i> , <i>Pericarpium citri reticulatae</i> , fried <i>Fructus aurantii</i> , dried ginger, <i>Ramulus cinnamomi</i> , fried <i>Dolichos lablab</i> , Chinese yam, <i>Hedyotis diffusa</i> Willd, and <i>Agrimonia pilosa</i> Ledeb
Syndrome of disharmony of liver and stomach	Dizziness, fatigue, nausea, vomiting, gastric upset, bitterness of mouth, depressed mood, sometimes may be accompanied with irritation and restless sleep. The patient has pale red tongue, slimy yellow fur, and string-like pulse	Zuojin Pill plus Wendan decoction with modified Chaihu Shugan Powder	<i>Rhizoma coptidis</i> , <i>Evodia rutaecarpa</i> , <i>Rhizome pinelliae preparata</i> , <i>Pericarpium citri reticulatae</i> , <i>Caulis bambusae</i> , <i>Scutellaria baicalensis</i> Georgi, <i>Radix bupleuri</i> , <i>Magnolia officinalis</i> , poria, <i>Codonopsis pilosula</i> , fried <i>Fructus aurantii</i> , <i>Hedyotis diffusa</i> Willd, <i>Rhizoma curcumae</i> , and <i>Salvia miltiorrhiza</i>
Syndrome of blood stasis due to qi stagnation	Pain and fatigue; pain of fixed location, particularly at night; somber facial complexion, scant qi, laziness to speak, reduced food intake, restless sleep, and (sometimes) dry bound stool; the patient has dark purple tongue (or with stasis macules on the tongue) and deep and rough pulse	Modified Danggui Buxue Decoction plus Xuefu Zhuyu Decoction	<i>Angelica sinensis</i> , <i>Radix astragali</i> , <i>Salvia miltiorrhiza</i> , <i>Semen persicae</i> , <i>Carthamus tinctorius</i> L, fried <i>Fructus aurantii</i> , prepared rhubarb, <i>Rhizoma curcumae</i> , <i>Hedyotis diffusa</i> Willd, <i>Agrimonia pilosa</i> Ledeb, <i>Solanum nigrum</i> L, <i>Radix actinidiae</i> , <i>eupolyphaga</i> , scorpion, and centipede

treat brain metastases; Fuzheng Yangyin decoction (*Radix rehmanniae*, *Radix rehmanniae preparata*, *Ophiopogon japonicus*, *Scrophularia ningpoensis*, raw *Radix astragali*, *Rhaponticum uniflorum*, *Houttuynia cordata* Thunb, and *Cimicifuga foetida*) has shown certain efficacy in regulating spleen and stomach in patients with non-small cell carcinoma or advanced liver cancer. It can alleviate the symptoms to varying degrees in a significant proportion of patients, prolong survivals in some patients, and even achieve long-term survival in a few patients. In a prospective study, Liu *et al.* (48) used yin-nourishing, fluid-nourishing, qi-tonifying, and yang warming medicinals to treat 304 patients with advanced primary cancers. Compared

with the chemotherapy group, the TCM group significantly prolonged the survival, resolved or stabilized tumors, improved quality of life, and adjusted the immune functions. Zhou *et al.* (49), based on the features of lung cancer including phlegm, stasis, deficiency, and toxin, developed two prescriptions—Yachan tablets and Gujin Mojin tablets. After medication, symptom improvements were observed in 61.7-68.8% of patients; although the tumor inhibition rate was only 6-10%, the survival reached 8 months and 10 months, respectively, which was significantly superior to the chemotherapy group, realizing the targets of “alive with tumor” and “improved quality of life” for patients with advanced tumors. Chen *et al.* (50) investigated the

effectiveness of TCM in treating primary non-small cell lung cancer in a meta-analysis of 7 trials, which showed that the median survival was 335.4 days in the TCM group and 231.8 days in the chemotherapy group, indicating that although the TCM is superior to chemotherapy in terms of long-term survival, although with low effectiveness. It was found that the symptomatic TCM treatment could remarkably improve the quality of life in frail patients with advanced cancers. According to Yin (51), TCM therapies can adjust qi by adjusting liver, fortifying spleen, and tonifying kidney; thus, they can improve the accompanied symptoms of malignancies, improve the quality of life, and meanwhile reflect the concepts of humane care.

## Emotional care in TCM

### *Concept of “Seven emotions” in TCM*

According to TCM, the seven emotions refer to seven emotional activities including joy, anger, worry, anxiety, sadness, fear and fright. The seven emotions are believed to be the normal mental status of human beings. Normally, the seven emotions don't cause diseases and only when the emotional stimulations are too abrupt, violent, and prolonged and beyond one's adaptability or when there is diminished adaptability due to imbalanced yin-yang, qi and blood of viscera, can they turn into pathogenic factors, thus causing or aggravating diseases. Since the seven emotions can hurt viscera and cause the disorders of visceral functions, they are considered to be one of the main pathogenic factors from the perspective of TCM, which is known as “internal injury due to seven emotions”. As noted in *Inner Canon of Huangdi*, “excessive anger impairs the liver, excessive joy impairs the heart, excessive contemplation impairs the spleen, excessive grief impairs the lung, and excessive fear impairs the kidney; also, rage leading to qi ascending, excessive joy leading to qi loose, excessive sorrow leading to qi consumption, fear leading to qi sinking, fright leading to qi turbulence, pensiveness leading to qi knotting, and worry leading to qi accumulation”. Therefore, emotions can cause diseases by directly affecting the related organs or by indirectly causing disordered qi and making the organs can't exert their normal physiological functions. According to the *Orthodox Medical Records*, “the seven emotions are matched with the five viscera. Excessive emotions hurt the five viscera. The internal injuries due to the seven emotions are difficult to treat. Therefore, it is important to identify the damaged viscera by observing its color, checking its

pulse, observing its morphology, and determining its excess or deficiency. Then a proper treatment can be applied”. The emotional care is roughly equal to the psychological care in modern medicine. The purpose of emotional care is to provide various care to eliminate the poor mental status of the patients, making the mental factors become positive factors that may help to resolve the disease. Emotional care has a long history in China. The *Inner Canon of Huangdi*, which was compiled in Spring and Autumn/Warring States Period, noted that “Keep the mind free from avarice. In this way the Genuine-Qi in the body will be in harmony, the essence and spirit will remain inside, and diseases will have no way to occur” (52); and, “loss of spirit and willingness results in the poor prognosis of a disease” (53). These statements fully elaborate the importance of spirit and emotions in disease prevention and treatment as well as health care, which lays a foundation for the TCM-based emotional care. In the coming centuries, doctors further elucidated this concept and developed unique emotional care approaches.

### *Emotional care for patients with advanced cancers*

With physical symptoms such as pain, most patients with advanced cancers will be depressed and are often fearful of death. Therefore, the medical staff must have good virtues, know the concept of “Seven Emotions”, and grasp the basic principles of “emotion-related diseases”. Also, the medical staff must be noble, nice, reliable, friendly, and skillful, so as to encourage the patients to be optimistic and mobilize their cortex and viscera to actively adjust body functions and thus improve the therapeutic effectiveness. Dr. Sun Simiao [581-682] of the Tang Dynasty is one of the founders of psychotherapy in China. Throughout his life, he paid great attention to the moral cultivation of medical practitioners. He believed that the good psychological communication could enhance the patients' response to treatment. In his book *Da Yi Jing Cheng* (also named *Mastership Lies in Excellence and Honesty*), he writes (52), “When treating a patient, a great doctor must calm himself down and be free of desire or requirement; he must be with mercy and swear to save those who are suffered. If a patient come to ask for help, the doctor should treat him/her equally as his own family members, no matter the patient is poor or rich, young or old, friend or foe, Chinese or foreigners, wise or foolish... The patient's pain is just as the doctor's. With deep mercy, the doctor must visit the patient's house to rescue the patient wherever the condition is dangerous, dark, cold or whenever the doctor himself is hungry, thirsty, or tired.

Never just try to show off himself.” This is exactly the same as the modern theory that good doctor-patient relationship and good virtues of medical staff can help the patients to maintain a good stress status to receive the treatment, so as to achieve the optimal treatment and nursing effectiveness.

### Counseling

Counseling is a basic treatment method by patiently explaining the conditions to the patients. According to *Ling Shu Jing - Shi Zhuan*, “Normally, people hate death and are willing to survive, telling the patients the severity of disease, explaining the good outcomes of the disease, introducing the effective treatment, and conciliating their pain. Even the most unreasonable person will listen to the doctor”. Person’s character is varied. For brash patients, the medical staff should patiently tell them that “eager produces anger, and anger impairs the liver”, making the disease more severe. The patient should be advised to control his/her temper to nourish the liver; when the liver qi becomes smooth, the disease will be cured. For depressed patients, they should be repeatedly comforted; meanwhile, they should be explained that pensiveness leading to qi knotting, and worry hurts lung. The patient should be relaxed to nourish the lung. “Lung dominates the qi throughout the body and regulates the water”. The harmonized qi and good qi/blood circulation help the patient recover from the disease. In addition, the disease severity also varies among patients. For example, some patients have life-threatening diseases, which may make the patients become despaired. Then, it is important to provide counseling to the patients to explain the disease conditions and the importance of maintaining a cheerful, optimistic, and open-minded mood. For the critically ill patients, the medical staff should keep calm and avoid using irritating language, encouraging the patients to establish the confidence to overcome the disease.

### Transference of attention

Transference of attention is applied to help the patients to pay less attention on their diseases and achieve better mental status, so as to promote their recovery from disease. As mentioned by *Medical Records for Clinical Guidance*, “A depressed emotion is caused by the unresolved, twisted feelings, and the cure of disease should be based on the transference of attention”. Therefore, the emotion-related diseases can be treated by the transference of attention. Also, the *Li Yu Pian Wen* (the Corpus Text of Disease Management) noted, “Diseases related with the seven emotions can be cured by reading books or watching an

opera, which may be better than medications”. Playing chess, playing musical instrument, reading book, painting, fishing, and tourism can achieve the transference of attention, change the patients’ psychopathological status, and thus achieve good therapeutic effectiveness. In fact, transference of attention is designed to utilize the good external environment to change the patients’ attention on disease, so as to minimize the bad stimulation of poor emotions.

The emotional care in TCM is an integration of science and art. By observing and analyzing the patients’ psychological activities, it provides flexible and feasible care for the patients, so as to restore the imbalanced psychological and physiological functions and promote the cure of diseases. It reflects a dynamic holistic view of health and is also a key component of TCM (54).

### Conclusions

Based on the principles of holism and pattern identification, TCM is a key component of the multidisciplinary treatment for advanced tumors. As shown in a large number of studies, the proper use of TCM-based therapies can enhance immune function, speed up recovery, alleviate radiochemotherapy-related toxicities, relieve pain, improve quality of life, and extend survival. TCM has shown unique advantages in treating malignancies when compared with modern medicine. However, as shown in many clinical reports, TCM-based treatment is targeted at improving symptoms, improving quality of life, and extending the survival. Therefore, it can be categorized as palliative therapy. From the perspective of modern medicine, palliative therapy is mainly targeted at cancer cells and a few life-threatening symptoms. Few palliative therapies are specially designed for the common discomforts/symptoms related with malignancies, although the symptomatic management is also very common. Although TCM has not made breakthrough in the radical treatment of malignancies, the “pattern identification” and other principles of TCM have shown many advantages in improving cancer-related symptoms. Nevertheless, the role of TCM in treating malignancies remains controversial. The rules of pattern identification for malignancies, the summarization of relevant experiences, and the interpretation of its clinical effectiveness warrant further exploration.

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