

# The Role of Chinese Medicine in Cancer Care—a Critical Review

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## ABSTRACT

Traditional Chinese medicine (TCM) has been widely used in China and other East Asian countries for helping cancer patients. However, it is unavailable to most patients who are treated in NHS in UK, due to there is not enough evidence in using TCM in cancer patients. To try to establish the evidence base for using TCM in cancer patients management, the author reviewed the current available clinical reports to TCM treatment of cancer patients, mainly those of randomly assigned and controlled clinical trials (RCTs) with bigger samples, from maintaining the quality of life, enhancing immune system, remedying the side effects from radiotherapy and chemotherapy respectively, and to propose a role of TCM as an assistant therapy to the main therapies. We then concluded that TCM holds its unique value in maintaining good quality of life, and to help the patients through the operation, chemotherapy and radiotherapy to achieve better outcomes.

**Key words:** Traditional Chinese medicine (TCM), Cancer, quality of life

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## BACKGROUNDS

As we know, the treatment for cancer is one of the most difficult tasks in medical and healthcare service. Advance in science and technology have made significant improvement in understanding and diagnosis of cancer. It is now very possible to diagnose a cancer case in its early stage and remove it completely, therefore cure it. However, when it is not found in the early stage, the prognosis is still dismay and many will eventually die of it. Both medical professionals and patients are not satisfied with current available treatment regimens which rely on surgical operation if possible, following with either chemotherapy and/or radiotherapy, which both have serious side effects.

Traditional Chinese medicine (TCM) have been applied in conjunction with the mainstream medical procedures to treat cancers, or even used as the main treatment methods for the past five decades, and some very promising outcomes were reported. However, it is rare that patients have the choice to add TCM into their overall management of their cancer treatment in UK<sup>[1]</sup>. As a complementary medicine, TCM has not been included in the provision of National Healthcare Service (NHS) in the UK<sup>[2]</sup>, and most patients are treated in the NHS, without a chance to select it. This limitation might be made based on information of researches many years ago, and they might not reflect the development in the recent years. Meanwhile, many practitioners in UK have reported that they treated patients with cancers and the results were very promising<sup>[3]</sup>. It is a situation need clarification. Can

TCM be a valuable therapy in helping patients suffering from cancers, and if so, what can TCM do, and in which area TCM could demonstrate its advantage? This is the research questions the researchers/authors aimed to find answers. Thanks to the unique position of enjoying rich research information from both English literature and Chinese reports, some new evidence is examined to provide possible answers. Some treatment protocol based on TCM studies have shown better result than conventional treatments, and won international prize for their success<sup>[4]</sup>.

## THE SURVEYS ON THE PREFERENCE OF TCM FROM THE PATIENTS WITH CANCER

A survey on cancer patients' attitude to TCM in Hong Kong was carried out by Lam et al<sup>[5]</sup> in Baptist University: a total of 786 participants included in the study, 42.9% used Western medicine only; 57.1% used at least one form of Chinese medicine; 5% participants used Chinese medicine only; and 56.5% used Chinese medicine before/during/after Western medicine treatment. The most popular treat regime is that using chemotherapy in combination with TCM herbs (63.3%) among almost every patients receiving chemotherapy received TCM at the same time. They concluded that cancer patients in Hong Kong considered integrative Chinese and Western medicine is an effective cancer treatment. Similar findings were reported among the Asian populations in USA, Canada, Singapore and Australia<sup>[6–10]</sup>, which revealed high

level of expectation to TCM in their treatment. The reasons were also analyzed, which were thought to be mainly related to the cultural background, their education received, and the social circumstances.

It was generally agreed by those researchers that knowing TCM is the key elements for those people to choose TCM in together with conventional medical treatment. The researchers suggest that there is a strong need and expectation of TCM among all patients to help them achieve better results. The strong demand from the government, insurance provision, and people is the main driving force to promoting the use of TCM. Wong et al<sup>[11]</sup> in Singapore did a survey of 65 consecutive patients in an Asian oncology department by using a modified and translated instrument capturing information on patients' characteristics, CAM use, treatment refusal and satisfaction. They discover that overall 60% of patients using herbal treatment expected a cure, a longer life, symptomatic relief, improved immunity or a better quality of life. Satisfaction with western treatment correlated positively with satisfaction with CAM (Spearman's rank correlation coefficient = 0.4) with forty-six patients (71%); fourteen patients refused previous western treatments (21%), among of them, 11 feared its side effects, 3 for other reason, five preferred CAM (8%). This study highlights the prevalence of CAM practices among Asian radiotherapy patients, their high expectations of the outcome and the need for better doctor-patient communication.

## THE ROLES OF TCM IN THE TREATMENT OF CANCER: EVIDENCES FROM THE CLINICAL PRACTICES

### 1. To improve the quality of life

Que et al<sup>[12]</sup> proposed a system to assess the quality of life for those patients under TCM treatment which measures the severity of many symptoms and signs. By summarizing their clinical observation, they suggest that the TCM application on cancer should be a multi-way, multi-layer and multi-target integrated treatment characterized by "survival with tumor" and improvement of life quality. An ideal result of the TCM therapy for cancer should be a positive response of the patient with satisfactory quality of life (QOL) and longer survival time. Lin et al<sup>[13]</sup> observe the effect of TCM in improving quality of life of patients with non-small cell lung cancer (NSCLC) in III or IV stage. A total of 294 patients in 6 hospitals were randomly assigned into three groups, 99 in the TCM group treated with TCM according to disease and syndrome differentiation, 92 treated with chemotherapy in the western group and 103 treated with combined therapy of TCM and chemotherapy in the integrative group. Six items, including physical status, social/family status, and communicated with physicians, emotional status, functional status and additional concerning status, were investigated and analyzed by using Functional Assessment of Cancer Therapy-lung (FACT-L). Their conclusion is that TCM has certain antagonistic effect on the adverse reaction of chemotherapy, and it can improve the quality of life of patients to certain extent. Tao et al<sup>[14]</sup> have done a research on

survival benefit to elderly patients with stage II and III colorectal cancer in Shanghai. A total of 78 cases were included in this study with 37 cases in integrated treatment (TCM and western medicine) group and 41 cases in Western medicine group. Their research found that TCM syndrome differentiation and treatment is important for improving the prognosis of stage II or III colorectal cancer in elderly patients. Integrated treatment shows benefit for reducing relapse and metastasis rates, and prolonging survival for elderly patients.

### 2. To improve the immune response

Wang et al<sup>[15]</sup> observed the regulatory effect of Bushen Jianpi Recipe (BSJPR) on cellular immunity the of primary liver cancer patients, which is a multi-center randomized controlled trial, 117 patients after transcatheter arterial chemoembolization (TACE) were assigned to two groups, 60 in the treated group and 57 in the control group, who were treated respectively with BSJPR and liver protecting remedy (silymarin and vitamin c) for 12 weeks. Changes in quality of life (QOL), immediate effect on tumor size and survival time were observed. Meantime, the cellular immune function was also monitored, including the T lymphocyte response determined by 3H-TdR, expression of MHC class I/II and B7 molecule detected by FACS, and interleukin 10 and 12 (IL-10, IL-12), interferon-gamma (IFN-gamma) tested by ELISA. In the TCM group after treatment, their half-year survival rate was 83.33% (50/60 cases); while those in the control group was 70.18% (40/57 cases) respectively, significant difference was shown between the two groups ( $P < 0.05$ ). The patients' QOL was improved in the treated group after treatment, with no obvious adverse reaction. However, the clinical benefit rate in the control group (92.7%, 51/55 cases) was higher than that in the treated group (78.0%, 46/59 cases,  $P = 0.035$ ). Laboratory examination showed increases of MHC class II (CD14+/HLA-DR) expression on monocyte surface as well as IFN-gamma and IL-12 production in the treated group. They believe that using BSJPR together with TACE could enhance patients' cellular immune function to elevate the clinical curative effect on primary liver cancer. Chan et al<sup>[16]</sup> in St Mary hospital in Hong Kong carried out a clinical trial in women with chemotherapy for ovary cancer to evaluate the quality life of them. The results show no significant difference in terms of Quality of life between TCM group and non-TCM group. However, those in TCM groups did show a less severe damage to their immune system, which was measured by Lymphocyte counts and cytokine activities. TCM group shows less decrease comparing to non-TCM group.

### 3. To minimum the side-effect of Radiotherapy and Chemotherapy

Liu et al<sup>[17]</sup> in Taiwan examined the effectiveness of TCM for liver protection and completion of chemotherapy among patients with cancer receiving chemotherapy. They used a case-control design to examine the medical records of patients with cancer who received chemotherapy in a

teaching hospital in Taipei in 2004. A total of 184 courses of chemotherapy among 89 patients were studied. Of the 184 courses, 42 used TCM jointly with chemotherapy served as cases, while the remaining 142 courses served as controls. Outcome variables included counts of cancelled or delayed chemotherapies and liver function (aspartate aminotransferase, AST and alanine aminotransferase, ALT) 1 week before, during and 2 weeks after chemotherapy. Generalized estimating equations were used to analyze the data. Patients who had concomitant TCM with chemotherapy had lower serum ALT and AST during chemotherapy than the controls given that the age, sex, cancer stage, radiotherapy sites, cancer diagnosis and potential hepatotoxicity of the chemotherapeutic drugs were controlled for in the model [ $\beta = -3.48$ , 95% confidence interval (CI)  $-10.08$  to  $3.11$  for AST;  $\beta = -5.95$ , 95% CI:  $-11.47$  to  $-0.44$  for ALT]. There was no significant difference between the case and control groups for odds of completing one course of chemotherapy. Use of TCM with chemotherapy resulted in protection of the liver during chemotherapy, as manifested by lower serum AST and ALT levels. Wong et al<sup>[18]</sup> worked on chemotherapy induced peripheral neuropathy (CIPN) which occurs in 10 to 20% of cancer patients treated with neurotoxic chemotherapy. A mixture of sensory, sensorimotor and autonomic nervous system dysfunction can occur, resulting in deterioration in function and worsened quality of life. They reported the result of a pilot prospective case series of five patients treated with an acupuncture protocol that aims to correct Qi, Blood and Yang deficiencies and directs Qi and Blood to the extremities, with the goal of improving the symptoms of CIPN. The responses were encouraging.

#### 4. To treat the complications on peri-operation period and promote the rehabilitation of patient after operation

Tan et al<sup>[8]</sup> in Singapore discover that TCM has been used successfully during the peri-operative period to relieve intestinal obstruction, reduce postoperative symptoms and reduce urinary retention after rectal surgery. Good results have been reported in the treatment of the complications of chemotherapy and radiation enterocolitis. Favorable results have also been shown in the use of TCM either alone or in combination with chemotherapy to treat advanced colorectal cancer. Molecular studies have shown some TCM compounds to reduce tumor cell proliferation and induce apoptosis. Although the reported results of TCM have been exciting thus far, problems of lack of consensus on treatment regimens and questions on the reliability, validity and applicability of published studies prevent its widespread use. There is now an urgent need for colorectal surgeons to work

with TCM physicians in the continuing research on this area so as to realize its full potential for our patients.

#### 5. To ease the pain

Zhu et al<sup>[19]</sup> studied available cases reports and proposed an evaluation scheme for measure the pain reducing effect when external TCM herbal therapy is used to relieve the pain caused by cancer. Different types of cancer pain should be distinguished and treatment should be applied according to such a differentiation. It is based on the assumption of the external TCM therapy is effective and widely used in many hospitals.

Chen et al<sup>[20]</sup> summarized case reports in this area 10 years before 2008. The conclusion is that that acupuncture is effective and safe in treatment of cancer pain. However, better guidance and further studies are needed to improve its effects. Wu et al<sup>[21]</sup> introduced a tested herbal recipe, Aitongping capsule (ATP), which is a TCM herbal remedy designed to relieve cancerous pain. Sixty cancer patients were randomly divided into two groups, 30 patients in the TCM group took ATP and 30 patients in the control group took Diclofenac, 1 week of treatment was applied. The relevant clinical conditions of cancerous pain, the content of plasma beta-endorphin (beta-EP) and c-AMP, hemorheological index, improvement of life quality of patients, occurrence rate of adverse reaction were observed before and after treatment. The total effective rate in the TCM group and in the control group was 90.0 % and 83.3% respectively, without statistic difference. However, there were significant difference between the two groups in aspects of numbers of pain episodes, pain bearing time and the initiation time of analgesic action and prolonged analgesic duration, the decrease of tenderness and percussion pain, the increase of plasma beta-EP content and the decrease of cAMP ( $P < 0.05$  or  $P < 0.01$ ). The evidences also showed that it was better in improving quality of life, ameliorating hemorheologic indexes and reducing incidence of adverse reaction in the treated group than in the control group ( $P < 0.05$  or  $P < 0.01$ ). ATP has affirmative effect on cancerous pain, its analgesic effect may be associated with the increasing of plasma beta-EP content, decreasing of cAMP level and ameliorating of hemorheologic indexes.

### THE ROLES OF TCM IN THE TREATMENT OF CANCER

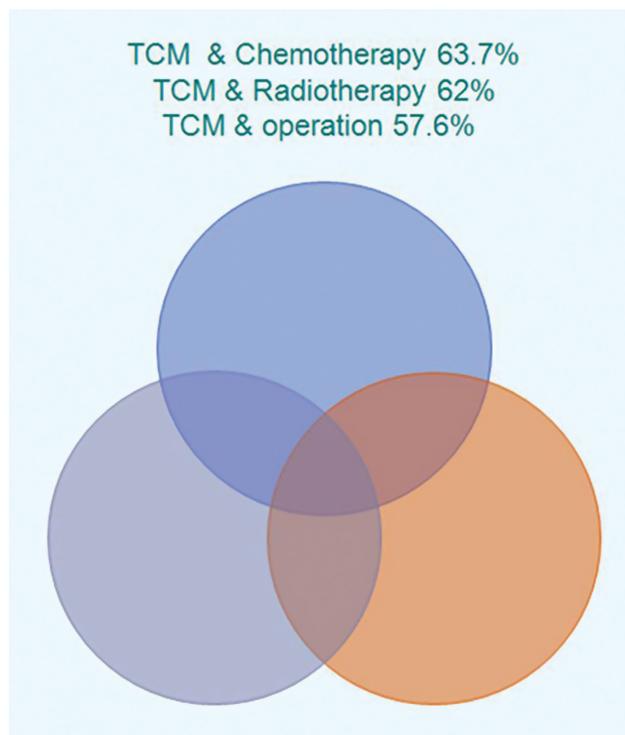
The UK NHS followed three principles regarding its nature of service from the beginning of its setup in 1948. The principles are: a) to meet the needs of everyone; b) to be free at the point of delivery; c) to be based on clinical need,

Table 1. Clinical trials included

Categories	raise the quality of life	improve the immune response	minimum the side-effect	treat the complications	Pain management
researchers	Lin et al (2006) Tao et al (2010)	Wang et al (2008) Chan et al (2011)	Liu et al (2009) Wong et al (2006)	Tao et al (2010)	Wu et al (2005)

**Table 2:** Baseline Characteristics of the clinical reports

Wong et al (2006)	Clinical case observation						acupuncture	5	n/a	Clinical records of symptoms	All symptoms were improved
	Researchers	Trial types	interventions	Size of sample	Control groups	Outcome measurements					
Lin et al (2006)	Controlled trial Lung cancer	Chinese herbal medicine	294 (99:92:103)	Chemotherapy chemo+ Chinese medicine	Functional Assessment of Cancer Therapy-lung (FACT-L)	Three groups shown similar results, but CM have better life quality					
Tao et al (2010)	Controlled trial colorectal cancer	Chinese herbal medicine	78 (37:41)	Chemo+radio therapies	5 year survival rate DFS	CM treatment achieved higher survival rates in all years followed					
Wang et al (2008)	RCT Liver cancer patients receiving chemotherapy	Bushen Jianpi Recipe (a herbal remedy)	117 (60:57)	silymarin + vitamin c	Immune tests; 6 month survival rate; QoL index	Better immune improvement in treatment group than control group, But QoL are the same					
Chan et al (2011)	RCT ovary cancer	Chinese herbal medicine	59 (31:28)	Placebo pill (no real herbs in)	QoL; Immune tests	Better immune protection; but no difference in QoL.					
Liu et al (2009)	Case-control clinical trial Cancer patients receiving chemotherapy	Chinese herbal medicine	184 (42:142)	blank	Completion rate of chemo-treatment course; Liver functions	Liver protection is observed; No difference is observed in the completion rate					
Wu et al (2005)	Patients suffering RCT Cancerous pain	chemotherapy induced peripheral neuropathy					Aitongping capsule (aHerremedy)	60 (30:30)	Diclofenac	Pain index; QoL; Immune tests Records of side effect	It reduce the scale, episode ad frequency of pain, QoL improved



**Figure 1.** Review on Clinical Reports Regarding CM in Cancer Management

not ability to pay<sup>[1]</sup>. The three principals have guided the development of the NHS over more than 60 years and remain at its core at it stand now in its constitution. The evaluation of medical procedures and therapies are carried out by an independent institution, named National Institution of Clinical Excellence (NICE)<sup>[2]</sup>.

From the literature review above, it is easy to see the patient demands as not only Chinese patients know TCM could help, but also many UK patients know that, as many public institutions, including recognise that acupuncture helps conditions suffered with cancers. Royal Marsden NHS Trust<sup>[22]</sup> stated in its website information page: “*Acupuncture can be helpful for people who experience symptoms such as pain, nausea, dry mouth, hot flushes, fatigue and breathlessness.*”

However, little is known to public about the advance in Chinese herbal medicine in the area of cancer management. Providing that the patients receive enough information about TCM herbal therapy within the management of cancers, the demanding will be considerable. Given the choice, many patients will try TCM herbs for its benefit.

The safety issues is not a real concern neither, as both acupuncture and herbal medicine have been constantly demonstrated by their safe practice records. However, none of the trials has reported on potential liver and kidney side effects. Cost effectiveness is not a problem at all. TCM do not use expensive equipments, neither very cost drugs. The studies including those over the management of migraine and lower back pain all demonstrated TCM and acupuncture are cost-effective, and are cheaper than other conventional ways of management. Then the only remaining hurdle is the attitude towards TCM, the professional bodies and

researchers should work together to demonstrate the advance and progress achieve worldwide, and to spread the news to help the change of the attitude. The following areas as the main directions the profession could emphasize to convince that public and policy makers to be aware of the possible benefit that TCM could bring forwards. The potential mechanism or direct targets of TCM lies in reducing the side effects of western treatment, enhancing the immune response of cancer patients and easing the pain.

### **Strengthening of the own repairmen and healing power to encourage the maintaining of normal condition**

TCM believes that the most important job is to re-establish this system to promote the body’s own capacity to heal itself. This is an area TCM has its own advantage, as it looks after not only the illness, but also the whole system.

### **Repairing the damaged immune system of patients with cancers to prevent complications**

The weakened immune system is largely responsible for many of the complications, and therefore for the poor quality of life. The immune system is seriously damaged in patients with cancer, and this was observed and widely reported by many TCM clinical observations. Reports from both clinical trials and laboratory tests have confirmed that many TCM herbals and acupuncture can significantly help to rebuild the immune system. Chemotherapy and radiotherapy are all causative factors in bringing down the system, as sides effects in many case reported, their cancer cells have been killed, but their already compromised immune systems have suffered further damage due to the two therapies.

## **CONCLUSIONS**

TCM holds its unique value in maintaining good quality of life, and to help the patients through the operation, chemotherapy and radiotherapy to achieve better outcomes. However, more double blinded clinical trials with placebo control treatment are needed in the future.

## **COMPETING FINANCIAL INTERESTS**

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