Traditional Chinese Medicine in Cancer Care: A Review of Case Reports Published in Chinese Literature

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Keywords

Traditional Chinese Medicine · Cancer treatment · Case report · Literature review

Summary

Background: Traditional Chinese Medicine (TCM) is widely used for cancer treatment in China. Many support its use in treatment for cancer, yet scientific evidence for the effect of TCM needs to be established. **Material and Methods:** In this review case reports on cancer patients treated by TCM therapies are included. Search runs were conducted in 4 main Chinese databases till December 2009. **Results:** A total of 716 reports involving 1,198 cancer patients were identified and summarized. Top 5 of the reported cancers treated with TCM were lung cancer (14.44%; 173 patients), leukemia (14.11%; 169 patients), stomach cancer (10.85%; 130 patients), liver cancer (10.18%; 122 patients) and esophageal cancer (7.35%; 88 patients). In the majority of cases (66.44%; 772) combined treatments of Chinese and conventional medicine were applied. The use of herbal medicine was highly prevalent (98.50%; 1,168 patients), and the typical administration was an individually tailored treatment according to the pattern differentiation of symptoms (74.21%; 889 patients); the use of acupuncture was relatively rare (1.8%; 22 patients). Symptom improvement was the most frequently reported outcome (84.72%; 1,015 patients). Only 15 studies (2.1%) were structurally reported. Detailed information on patients' demography, pathologically confirmed diagnosis and safety was given in 275 (22.95%), 692 (57.76%) and 10 (0.83%) reports, respectively. **Conclusion:** The amount of information from case reports of TCM therapies in cancer is rich and can be valuable for the preliminary evaluation of TCM and for the planning of further clinical trials in cancer treatment. However, the quality of the reports was generally poor and we recommend that case reports should be published in a structured manner.

Schlüsselwörter

Traditionelle Chinesische Medizin · Behandlung von Krebs · Falldarstellung · Literaturübersicht

Zusammenfassung

Hintergrund: Traditionelle Chinesische Medizin (TCM) wird in China oft für die Behandlung von Krebs genutzt. Viele betonen den Nutzen einer solchen Behandlung bei Krebs, doch müssen noch wissenschaftliche Beweise für die Wirksamkeit von TCM erbracht werden. **Material und Methoden:** In dieser Übersichtsarbeit sind Falldarstellungen von Krebspatienten enthalten, die mit TCM behandelt wurden. Suchläufe wurden in den 4 chinesischen Hauptdatenbanken bis zum Dezember 2009 durchgeführt. **Ergebnisse:** Eine Gesamtsumme von 716 Berichten mit 1198 Krebspatienten wurden identifiziert und zusammengefasst. Die Top 5 der mit TCM behandelten Krebsarten waren Lungenkrebs (14,44%; 173 Patienten), Leukämie (14,11%; 169 Patienten), Magenkarzinom (10,85%; 130 Patienten), Leberkarzinom (10,18%; 122 Patienten) und Ösophaguskarzinom (7,35%; 88 Patienten). In den meisten Falldarstellungen (66,44%; 772) wurde eine kombinierte Behandlung aus Schulmedizin und TCM angewandt. Die Anwendung von Kräutermedizin überwog (98,50%; 1168 Patienten), typischerweise wurde ihre Anwendung individuell maßgeschneidert je nach Differenzierung der Symptomschemata (74,21%; 889 Patienten). Akupunktur wurde selten genutzt (1,8%; 22 Patienten). Eine Symptomverbesserung wurde häufig beobachtet (84,72%; 1015 Patienten). Nur 15 Studien (2,1%) berichteten strukturiert. Detaillierten Informationen zur Patienten-Demographie, pathologisch bestätigten Diagnosen und Sicherheit wurden in 275 (22,95%), 692 (57,76%) bzw. 10 (0,83%) Studien berichtet. **Schlussfolgerung:** Die Menge an Information in Form von Falldarstellungen über TCM-Therapien bei Krebs ist reichhaltig und kann als vorbereitende Evaluierung von TCM und für die Planung weiterer klinischer Studien in der Krebsbehandlung genutzt werden. Trotzdem war die Qualität der Studien generell schlecht, wir empfehlen eine strukturiertere Veröffentlichung von Falldarstellungen.

Introduction

Cancer is a main cause for death worldwide. The World Health Organization estimated that there have been 7.5 million cancer deaths in 2005 and that this figure would rise to 84 million within the next 10 years if no action is taken [1, 2]. Conventional therapy for cancer, such as surgery, chemotherapy and radiotherapy, has shown reasonable success in reducing mortality. However, it is widely acknowledged that most cancer patients suffer both physically and mentally from multiple symptoms, either due to the cancer disease itself or caused by allopathic treatments, resulting in a decrease in quality of life (QOL). Cancer patients often turn to complementary and alternative medicine (CAM), which, they believe, can be helpful in improving general well-being, relief of symptoms, and possibly even cure the disease itself. Several reviews showed that the prevalence of the use of CAM for cancer patients ranged from 6 to 91% [3–5].

Traditional Chinese Medicine (TCM), including herbal medicine, acupuncture and moxibustion, tuina massage and other therapies, is considered to be a part of CAM in many countries. TCM practitioners view the human body as a working organism and the treatment protocol is based on pattern differentiation of symptoms of individual patients. As a result, TCM is considered appropriate in managing chronic diseases such as cancer, but mainly for symptom relief or palliative care than for curing the disease.

The use of TCM for cancer treatment dates back more than 2,000 years in China [6] and is still prevalent. TCM for cancer treatment has been part of the curriculum in formal medical education in both Western Medical Schools and TCM universities in China. Till 2009, there were 20,291 hospitals in China, including 13,364 general hospitals, 2,728 TCM hospitals, 245 hospitals for integrative medicine, 191 hospitals practicing ethnic medicine and other specialized hospitals (www.moh.gov.cn/publicfiles/business/htmlfiles/zwgkzt/pwstj/index.htm). Almost all general hospitals have departments of TCM or acupuncture, and TCM therapies are used in cancer treatment (typically labelled as ‘integrated treatment’). Although TCM is generally accepted as complementary approach in addition to conventional treatment of cancer, high-level evidence of its efficacy is still lacking. Several systematic reviews/meta-analyses from randomized clinical trials on Chinese herbal medicines for different types of cancer have pointed out some potential; however, due to a wide variety of herbal medicines and a generally poor methodological quality of the trials [7–12] no conclusive therapeutic effects could be found. All available evidence, such as systematic reviews, only focused on clinical trials. On the other hand, even if generally considered of having only a low level of evidence, case reports of unexpected positive outcomes for cancer patients could be of clinical interest and could generate hypotheses which could be tested in further studies. The objective of the present study is to systematically identify, collect and analyze case reports

concerning TCM in cancer treatment published in Chinese scientific literature, to summarize this information, and suggest areas of further research.

Material and Methods

Source of Literature and Search Strategy

Two of the authors (J.Y. Liu, L.X. Ma) searched the main Chinese electronic databases, including China National Knowledge Infrastructure (CNKI) (1911 till december 2009), Chinese Scientific Journal Database (VIP) (1989 till december 2009), Chinese BioMedical Literature Database (CBM) (1978 till december 2009) and Chinese Medical Citation Index (CMCI) (1994 till december 2009). The used search terms included: ‘zhong_yi’ (Chinese medicine), ‘zhong_yao’ (Chinese herbs), ‘zhong_yi_yao’ (traditional Chinese medicine), ‘zhong_cheng_yao’ (Chinese patent medicine), ‘zhong_cao_yao’ (Chinese herbal medicine), ‘zhen_ci’ (acupuncture), ‘zhen_jiu’ (acupuncture and moxibustion), ‘zhong_xi_yi_jie_he’ (integrated traditional Chinese and Western medicine), ‘an_mo’ (massage), ‘tui_na’ (tuina massage), ‘min_zu_yao’ (ethnic medicine), ‘ai’ (cancer), ‘liu’ (tumor), ‘e_xing’ (malignant), ‘e_xing_zhong_liu’ (malignant tumor), ‘bai_xue_bing’ (leukemia), ‘yi_an’ (case record), ‘yan_an’ (unusual case), ‘ge_an’ (single case), ‘bing_li_bao_gao’ (case report), ‘jing_yan’ (experience), ‘ti_hui’ (opinion). No language restriction was applied.

Inclusion Criteria

Case reports and clinical experiences or opinions published in Chinese journals were included in the analysis if information on one or more cancer cases was available in whom TCM or TCM in combination with Western medicine (including herbal medicine, acupuncture, moxibustion, dietary therapy, qigong and other folk therapies used in China) was applied in cancer treatment.

Exclusion Criteria

Clinical trials, reviews, case series, reports of in vitro cell culture and animal studies were excluded. Case reports or essays about clinical opinions/experiences were also excluded if 1) the case report did not involve clinical treatment, 2) the case report did not include individual patient information concerning their cancer or TCM therapy or 3) the case report was published as a translation or abstract version of other reports.

Literature Selection

Two authors (J.Y. Liu and L.X. Ma) screened titles for eligibility and relevance; full text versions of the relevant papers were retrieved and re-

Fig. 1. Flowchart of literature search and study selection.

Fig. 2. Publication number of case reports on TCM for cancer published in Chinese journals.

Table 1. Top 11 journals with publication of case reports (total 716)

Journal name	Journal name in Chinese <i>pin ying</i>	Number of publications	Percentage
<i>New Journal of Traditional Chinese Medicine</i>	<i>Xin Zhong Yi</i>	60	8.38%
<i>Shanghai Journal of Traditional Chinese Medicine</i>	<i>Shang Hai Zhong Yi Yao Za Zhi</i>	42	5.87%
<i>Journal of Traditional Chinese Medicine</i>	<i>Zhong Yi Za Zhi</i>	41	5.73%
<i>Jiangxi Journal of Traditional Chinese Medicine</i>	<i>Jiang Xi Zhong Yi Yao</i>	24	3.35%
<i>Liaoning Journal of Traditional Chinese Medicine</i>	<i>Liao Ning Zhong YiZa Zhi</i>	23	3.21%
<i>Hubei Journal of Traditional Chinese Medicine</i>	<i>Hu Bei Zhong Yi Za Zhi</i>	17	2.37%
<i>Fujian Journal of Traditional Chinese Medicine</i>	<i>Fu Jian Zhong Yi Yao</i>	16	2.23%
<i>Sichuan Journal of Traditional Chinese Medicine</i>	<i>Sichuan Zhong Yi</i>	15	2.09%
<i>Jilin Journal of Traditional Chinese Medicine</i>	<i>Ji Lin Zhong Yi Yao</i>	13	1.82%
<i>Beijing Journal of Traditional Chinese Medicine</i>	<i>Bei Jing Zhong Yi</i>	13	1.82%
<i>Jiangsu Journal of Traditional Chinese Medicine</i>	<i>Jiang Su Zhong Yi Yao</i>	13	1.82%

viewed for a selection of case reports according to the inclusion and exclusion criteria. If one of the two authors was uncertain during the paper selection process, a third author (J.P. Liu) was consulted.

Data Extraction and Analysis

A structured data-extraction form was designed. It included the following fields: basic bibliometric information, types of treated cancer, types of treatment regimens, reported outcome and structure of the case report.

Bibliometric information included full citation, year of publication and type of journal. Cancer was anatomically classified into 10 categories: 1) musculoskeletal (including bone marrow), 2) dermatological, 3) neurological, 4) endocrine (including breast), 5) hematologic and lymphatic, 6) respiratory, 7) digestive (including liver, gallbladder, and pancreas), 8) urinary and reproductive systems, 9) head and neck cancer, and 10) others.

First of all the treatment regimens were classified into 2 categories: 1) TCM alone or TCM therapy with no indication of previous conventional treatment, 2) TCM and conventional therapy. TCM therapy was further classified into herbal medicine, acupuncture, moxibustion, dietary treatment, qigong, or massage.

For the determination of outcome measures we extracted data on survival, quality of life, symptoms (including cancer pain), relapse and/or metastasis, complications and tumor-size as well as adverse effects. A narrative description, such as ‘the patient is still living now’ or ‘the patient is in a stable condition now’, was considered as an unclear report and not counted as adequate reporting of survival.

We examined if the cases were reported in a structured manner. Case reports are defined as structured if they have the following format: background (optional), basic description of the patient, diagnosis, treatment, outcome, and discussion (optional). We also examined whether or not the following items are enclosed in the case reports: basic information about the patient, confirmed pathological diagnosis, syndrome differentiation based on TCM theory, description of treatment and description of outcomes. Information about patients was further defined as detailed if the report included sex, age, history of present illness, signs and symptoms, past medical treatment for the present illness and complications. Pathologically confirmed diagnoses were classified into 3 types: no reporting of diagnostic criteria, reporting of diagnostic criteria but not gold standard or reporting of a pathological diagnosis (gold standard).

Data were extracted by two authors (J.Y. Liu and L.X. Ma) and then verified by a third author (X. Li). Discrepancies were discussed, and consensus was reached involving also the other Chinese-speaking authors. Data were presented as counts, percentage or frequency.

Results

Bibliometric Information

Two authors (J.Y. Liu and L.X. Ma) screened a total of 11,335 articles by searching the 4 electronic databases; 10,355 articles were excluded due to irrelevant title and/or abstract. From the remaining 980 articles full texts were retrieved and evaluated. According to inclusion and exclusion criteria, further 264 articles were excluded. In total 716 articles involving 1,198 cancer patients were included in this study (fig 1).

469 (65.5%) of the remaining 716 articles were published exclusively as case reports, and 247 (34.5%) were published as clinical opinions/experience. The oldest publications were a case report from 1958, claiming that a patient with gastric cancer was cured by TCM [13] and a clinical experience report [14] published in 1958. Over the subsequent 50 years (1958–2008), publications in this area were identified in 40 of 50 calendar years (no publications were found in the years 1960, 1964, 1967–1973, and 1980). The number of publications per year seemed to increase, reaching a peak (114 publications) in 2008 (fig 2).

A total of 169 journals published case reports or clinical opinions/experiences of TCM for cancer treatment. The journal with the largest number of publications (60 articles) was the ‘*New Journal of Traditional Chinese Medicine*’ (*Xin Zhong Yi*) (table 1). Among the 716 articles, 180 (25.1%) were published in journals with state distribution level, 457 (63.8%) in journals with provincial distribution level and 79 (11.0%) in academic journals from universities and colleges.

Types of Cancer by Case

Cancer in the case reports covered all 10 predefined categories, including more than 40 different types of cancer (table 2). The most frequently occurring cancer categories were digestive cancer (40.1%), respiratory cancer (19.9%), and hematologic/lymphatic cancer (18.7%). Lung cancer (173), leukemia (169), and stomach cancer (130) were the most frequently reported cancer diagnoses.

Types of TCM Therapy

766 (63.9%) cancer patients were treated with both TCM and conventional medicine, 252 (21.0%) with TCM without indication of previous conventional treatment, and 180 (15.0%) received only TCM therapies.

Various TCM therapies were reported in the treatment of cancer. A patient could receive multiple types of TCM treatment (table 3).

The use of Chinese herbal therapy was reported in 1,168 patients out of a total of 1,198 patients (97.5%). The oral use

Table 2. Number and frequency of cancer patients in the case reports (total 1,198)

Classification of cancer	Cases	Frequency, %
Digestive system		
Stomach cancer	130	10.85
Liver cancer	122	10.18
Esophageal cancer	88	7.35
Colorectal cancer	64	5.34
Pancreatic cancer	31	2.59
Gallbladder cancer	16	1.34
Anal/anal rectal cancer	6	0.50
Esophageal-gastric cardiac cancer	4	0.33
Subtotal	480	40.07
Hematologic/lymphoid system		
Leukemia	169	14.11
Malignant lymphoma	43	3.59
Malignant histiocytosis	8	0.67
Primary macroglobulinemia	3	0.25
Polycythemia vera	1	0.08
Subtotal	224	18.70
Respiratory system		
Lung cancer	173	14.44
Urinary and reproductive systems		
Cervix cancer	26	2.17
Ovarian cancer	22	1.84
Bladder cancer	22	1.84
Corpus cancer	10	0.83
Prostatic cancer	9	0.75
Kidney cancer	8	0.67
Spermatocytoma	3	0.25
Malignant mole	1	0.08
Cancer of fallopian tube	1	0.08
Vulva cancer	1	0.08
Penis cancer	1	0.08
Ureter cancer	1	0.08
Subtotal	105	8.76
Head and neck cancer		
Cancer of the parotid gland	2	0.17
Tonsil cancer	1	0.08
Tongue cancer	3	0.25
Cancer of oral cavity	2	0.17
Nasopharyngeal cancer	59	4.92
Laryngeal cancer	11	0.92
Subtotal	78	6.51
Endocrine system		
Breast cancer	53	4.42
Thyroid cancer	14	1.17
Thymus cancer	4	0.33
Subtotal	73	6.09
Skeletal and muscular systems	35	2.92
Nervous system	30	2.50
Skin	17	1.42
Others	18	1.50

Table 3. TCM therapies for cancer patients in the case reports (total 1,198); any combination of these therapies could be used

TCM therapy	Patient cases	Frequency, %
<i>Herbal medicine</i>	1,168	97.50
Administration route		
Oral use	1,143	95.41
External use	64	5.34
Injection	40	3.34
Types of herbal medicine		
Individualized treatment – prescription based on syndrome differentiation	889	74.21
Chinese patent medicine	137	11.44
Classical recipe or modified recipe	118	9.85
Injection extracted from herbs	44	3.67
Acupoint stimulation	29	2.42
Acupuncture	22	1.84
Moxibustion	4	0.33
Others	5	0.42
<i>Dietary therapy</i>	13	1.09
<i>Qigong therapy</i>	5	0.42
<i>Folk therapy</i>	18	1.50

Table 4. Case numbers distribution of survival time of the most frequently reported cancer cases with the outcome of survival reported; numbers in brackets represent the numbers of cancer cases solely treated with TCM

Cancer type	<5 years	5 years	10 years	15 years	>20 years
Leukemia	25 (1)	15 (5)	13 (1)	7 (3)	3 (0)
Lung cancer	20 (9)	10 (0)	1 (0)	0 (0)	0 (0)
Nasopharyngeal cancer	17 (2)	8 (0)	1 (0)	0 (0)	0 (0)
Stomach cancer	13 (6)	8 (1)	0 (0)	0 (0)	4 (0)
Skin cancer	12 (7)	2 (0)	0 (0)	0 (0)	0 (0)
Esophageal cancer	10 (2)	5 (1)	0 (0)	1 (1)	0 (0)
Anal/anal-rectal cancer	10 (4)	4 (0)	0 (0)	1 (0)	0 (0)

of herbal medicine was mostly prescribed, based on syndrome differentiation. Other forms of application included topical application on skin, enema, suppositories, sublingual medication, and others (e.g. hip bath, wash of local focus using medicinal liquid, soaking of local focus in medicinal liquid, fumigating the local focus with medicinal steam, and topical application of herbal medicine on acupoints). Acupoint-stimulating therapies mainly involved needle acupuncture and moxibustion. Other non-pharmacological therapies included tuina-massage on acupoints, ear acupressure, injection of bee venom in acupoints etc. There were also several kinds of folk therapies reported, for example drinking of fresh animal blood, eating of fried snake, egg cooked with blister beetle (banmao) etc.

Outcome Measures Reported

Reported outcome measures in the articles were (ordered by frequency): symptom improvement (1,015/1,198, 84.72%) (including cancer pain in 253 cases), survival (833/1,198, 69.53%), tumor size (454/1,198, 37.9%), quality of life (331/1,198, 27.63%), relapse and/or metastasis (232/1,198, 19.37%), complications (92/1,198, 7.68%), and improvement of symptoms

induced by radiotherapy or chemotherapy (58/1,198, 4.84%). This differed from what we considered in the method section in regard to importance and relevance in cancer treatment. Symptom improvement (including relief of cancer pain) was the most commonly reported outcome, but generally in a narrative way. No case report mentioned the use of a validated scale or instrument to measure pain relief. Few reports used the Karnofsky performance status scale, a standardized measure for quality of life. Though a substantial proportion of case reports provided data on survival, only few provided the exact length of survival. The typical descriptions in the included articles were ‘the patient is still living now’, or ‘the patient is in a stable condition now’ [15, 16]. We considered this as an unclear report, and did not count it as an adequate reporting of survival.

For the case reports with follow-up on survival, the reported survival time reached from 1 month to 29 years; some of the cases were treated solely with TCM interventions (table 4).

Only 10 case reports (0.8%) provided relevant information on the safety of TCM treatments, of which 8 stated that no adverse effects had been observed during the treatment and 2 reported mild adverse effects.

Structure and Adequacy of Reporting

Out of the 716 case reports, only 15 (2.1%) were reported in a structured manner including objective, patient characteristics, treatment regimens, outcome measures and discussion. The others were reported as narrative, some using the format of an inpatient medical record. All case reports provided basic demographic information of the patient such as age, gender, and disease history, and 275 (23.0%) reported in more detail. Established diagnosis with pathological examination (gold standard) was reported in 692 cases (57.8%).

Discussion

Description of the Current Situation of TCM for Cancer Treatment

This study comprehensively presented data of cancer case reports treated by TCM therapy from Chinese literature for the first time. 716 articles published in 169 different journals over a time period of more than 50 years were included.

The findings from the case reports reflect the situation of TCM therapy for cancer treatment, and they can be considered as clues for further research. The interpretation of the findings from TCM therapies for cancer treatment should be made cautiously. Cancer types treated by TCM covered widespread cancer types in humans. The most frequent cancers treated by TCM were generally consistent with WHO statistics of the most frequent types of cancer-related death worldwide; except that the reports of TCM treatment for leukemia and lung cancer were higher than those of most of the other types of cancer. This might be related to the characteristics of leukemia and TCM theory. Leukemia, unlike other common types of cancer, is a systematic disease without a local focus. Therefore, the holistic view of TCM theory may be seen as more appropriate in treating this kind of cancer. One of the interesting findings of this analysis was that in the ancient Chinese medicine ‘*Pi Shuang*’ arsenic trioxide (ATO) is used for treatment of acute promyelocytic leukemia [17, 18]

In the majority of the case reports, comprehensive treatments integrating TCM and conventional medicine were applied. Chinese herbal medicine was the most prevalent therapy in cancer treatment, either used alone or in combination with conventional medicine. However, the use of herbal medicines varied, with typical individually tailored prescription of the herbal formulae. They were applied orally, topically or even intravenously. These findings are consistent with a qualitative study conducted in cancer patients in China by Xu et al. [19]. However, the use of acupuncture is rare according to the case reports, which appears to be quite different from the Western world where acupuncture is often used in cancer management, e.g. for relief of cancer pain or for attenuation of nausea and vomiting caused by chemotherapy. The reason might be that acupuncture has been legally accepted by the Western countries due to the increasing numbers of clinical

studies showing the beneficial effects of acupuncture, while herbal preparations are still not commonly accepted in practice in the Western world.

Symptom improvement including cancer pain was the most frequently reported outcome. This may reflect the conception that the primary objective of TCM therapy is symptomatic management. However, very few studies reported the use of validated instruments or tools to measure the symptoms or quality of life. There may also be reporting bias from the TCM practitioners since both practitioners and patients perceive that TCM therapy would be beneficial in symptom relief [19]. One of the advantages of case reports is to present ‘unexpected’ or unusual results. In a deadly disease like cancer, the ‘unexpected result’ will always be seen as the most important result, e.g. longer survival or ‘cure’ of cancer. However, inadequate reporting of survival in cancer cases prohibits an appropriate evaluation of TCM therapy.

Shang et al. [20] reported that the current placebo-controlled trials of Chinese herbal medicine are highly biased due to a higher tendency to present only positive results, but our study exclusively focuses on case reports and it is not appropriate to compare our data with those from randomized trials. However, action should be taken to improve the study quality.

Current TCM case reports generally are of poor quality. Out of 716 case reports, only 15 (2.1%) reported structurally and only 10 case reports (0.8%) provided relevant information on the safety of TCM treatments. We recommend that, when reporting a TCM case report, a better description of the patient including the diagnosis and disease stage, treatment regimens, results in regard to quality of life and safety of the treatment (including herb-drug interaction) as well as a supplement of the reviewed literature should be addressed [21, 22]. The retrieved case reports did not provide information on potential herb-drug interaction, and this should be addressed in future case reports, as it could be related to important events in cancer treatment using herbal formulae [23, 24]. The format of the reporting should encompass abstract, introduction with a short review, objective, descriptions of the patient and treatment, findings, discussion, and summary/conclusion.

Potential for Further Studies

We recommend that further studies should focus on the most frequent types of cancer, i.e. leukemia, lung cancer, stomach cancer, liver cancer and esophageal cancer, and on the most frequently used TCM therapies (prescribed herbal formula based on pattern differentiation of symptom, acupuncture, dietary therapy and therapeutic exercise such as qigong). We would like to encourage real-world observational studies looking at practice and treatment outcome in cancer patients who receive TCM treatment or integrated therapies. Any randomized clinical trial needs to be established on scientific hypothesis, which can be generated from case reports or case series.

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Disclosure Statement

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