Cancer is already a well-recognized global phenomenon. The traditional approaches to cancer therapy have been surgery, radiotherapy and chemotherapy. These modalities have shown considerable promise and presently form cornerstones of management of most malignancies. However, these conventional approaches have associated toxicities and suffer from limitations in curing advanced lesions. Complementary and alternative medicine (CAM), for reasons varying from cost to accessibility, has assumed significant importance in cancer therapy. In this article, we review the prominent modalities in CAM in present day cancer management and critically analyze their emerging potential into an evidence-based oncology practice.

**Key words:** complementary — alternative medicine — oncology

**METHODS**

The incidence of cancer is on the rise with an estimated 15 million new cases, and 10 million deaths expected by the year 2020 (1). Conventional treatment modalities for cancer include surgery, chemotherapy and radiation therapy, which have shown reasonable success in reducing mortality rates. Furthermore, these treatment techniques also provide considerable relief when used in palliative situations. Most of the present day treatment approaches have evolved systematically, standing the test of clinical trials and evidence-based medicine. However, it is an accepted fact that modern day anti-cancer strategies also results in increased levels of fatigue, anxiety, depression with consequent effect on physical and mental function, resulting in deterioration of quality-of-life (QOL) in many instances (2). Complementary and alternative medicine (CAM) has therefore made significant inroads as an accessory modality in cancer care, providing a feasible option for improvement in general well-being, palliation or occasionally even cure. However, before acceptance by the present day oncologists, it needs to pass the litmus test of scientific rationale and scrutiny of evidence-based medicine.

To review the practice of CAM, we did a systematic review of biomedical journals. Computerized literature searches were conducted on Medline, Embase, Cochrane and Allied and Complementary Medicine (AMED) databases with key words ‘complementary’, ‘alternative medicine’, ‘traditional therapies’, ‘cancer management’ and ‘oncology’. Articles only in English language published between 1980 till May 2007 were retrieved. Phase 1 and observational studies were included into our review, and case reports, individual opinions and reports not having a structured endpoint in cancer management were excluded from the analysis. Overall 63 articles were ultimately chosen for this review that included seven randomized, controlled trials. Also books in print and newsletters were searched for suitable materials and references.

**DEFINITION AND GENERAL CONCEPTS**

CAM is defined as any treatment that is used besides conventional treatment. Cochrane field defines complementary medicine as ‘diagnosis, treatment and/or prevention which complements mainstream medicine by contributing to a common whole, by satisfying a demand not met by orthodoxy or by diversifying the conceptual frameworks of medicine’ (3). The role of CAM in management of cancer or
its symptoms dates back into ages. In recent times, the popularity and interest in CAM has reached enviable heights with marked influences on cancer management (4). This may be due to the limitations of conventional cancer management, increased media advertising, desire for natural treatments, inaccessibility to the treatment centers or financial impediments (5).

PREVALENCE OF CAM USE

Contrary to popular notion, the use of CAM is very frequent in cancer patients across the globe. Ernst et al. in a summary of 26 surveys from 13 countries found that the prevalence of use of CAM in cancer patients was 31.4% (range 7–64%) (6). In another recent survey of 31 044 adult cancer patients conducted by the Centers for Disease Control, it was found that 36% were currently on CAM, a rate which rose to 62% when megavitamins and prayer for health reasons were included (7). Other studies have noted that 70–85% of cancer patients have used at least one CAM approach in conjunction with their cancer treatment (8,9).

CAM CLASSIFICATION

Complementary therapies consist of a large and diverse collection of diagnostic and therapeutic modalities that are used by patients with cancer. Primarily CAM is used for symptom control such as nausea, pain, anxiety and depression (10). Based on the classification used at OCCAM (Office of Cancer CAM), CAM therapies are divided into seven categories: alternative medical systems, energy therapies, mind body interventions, electromagnetic-based therapies, manipulative and body-based methods, pharmacologic and biotherapeutics and nutritional therapies (Table 1).

<table>
<thead>
<tr>
<th>Alternative medical systems</th>
<th>Built on complete systems of hypotheses and practices, e.g. acupuncture, acupressure, homeopathy, ayurveda and traditional Chinese medicine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy therapies</td>
<td>Involves the use of two types of energy which is postulated to surround and penetrate a human body. It includes manipulation of biofields by applying pressure and/or manipulating the body by placing the hands through these fields, e.g. Tai chi, QiQong, Reiki, therapeutic touch</td>
</tr>
<tr>
<td>Mind body manipulations</td>
<td>Techniques intending to augment the mind’s capacity to heal body symptoms, e.g. hypnosis, imagery, meditation, stress management, relaxation therapy, music therapy, cognitive-behavioral therapy, prayer, aroma therapy, yoga and pet therapy</td>
</tr>
<tr>
<td>Electromagnetic-based therapies</td>
<td>Include the unconventional use of electromagnetic fields such as pulsed fields, magnetic fields, or alternating-current or direct-current, e.g. electromagnetic fields or magnetic therapy</td>
</tr>
<tr>
<td>Manipulative and body based methods</td>
<td>Based on manipulation and/or movement of one or more parts of the body, e.g. chiropractic therapy, therapeutic massage, reflexology</td>
</tr>
<tr>
<td>Pharmacologics and biotherapeutics</td>
<td>Various drugs, complex natural products, biological interventions and vaccines not yet accepted in medical practice, e.g. antineoplastons, laetrile, mistletoe, immunomodulatory therapy, shark cartilage, Di bella regimen</td>
</tr>
<tr>
<td>Nutritional therapeutics</td>
<td>Various nutrients, bioactive agents used as chemopreventive agents, and use of specific diets as cancer prevention strategies, e.g. macrobiotics, vegetarian, Gerson diet, Kelley/Gonzalez regimen, soy phytostrogens, antioxidants, melatonin, selenium, coenzyme Q10 and ephedrine</td>
</tr>
</tbody>
</table>

ALTERNATIVE MEDICAL SYSTEMS

HOMEOPATHY

Homeopathy is widely used but controversial alternate therapy (11). The basic school of thought is that ‘like cures like’—(similia similibus curentur)—diseases can be treated by the substance that produce the same signs and symptoms in an individual (12). Treatment involves serial dilution such that no molecules of original substance remain and vigorous shaking between dilutions called potentization (13). Balzarini et al. (14) reported the results of a double-blind randomized controlled trial (RCT) including 66 women undergoing radiotherapy after breast cancer surgery. In addition to conventional treatment, they received either a homeopathic mixture (belladonna 7 CH, X-ray 15 CH, i.e. two homeopathic medicines in high dilutions) or a placebo daily for 8 weeks. The results suggested that the homeopathic mixture was superior to the placebo in minimizing the dermatologic adverse effects of radiotherapy. The downside of this study was that the outcome was quantified using a non-validated score of dermatologic signs such as erythema, edema, hyperpigmentation and temperature. The only reported study of homeopathy involving cell lines investigated the effect of the homeopathic medicines on prostate and breast cancer cell growth and on gene expression that regulates apoptosis, using MTT and multiprobe ribonuclease protection assay (15). None of the homeopathic remedies tested in different potencies produced significant inhibitory or growth-promoting activity in either prostate or breast cancer cells.

AYURVEDA

Ayurvedic medicine originated in India more than 2000 years ago. The belief is that when any one of the three humors of the body, such as vata, pitta and kapha get
Complementary and alternative medicine

Ayurvedic anti-cancer therapy includes recommendations for lifestyle and use of specific foods and herbs which are believed to be helpful not only in preventing the progression of the disease but also making the patients feel better and comfortable. *Allium sativum* (garlic) and *Allium cepa* (onion) has been reported to have various health benefits including protection against cancer (18). Bachop monniera (Water Hyssop or moneywort or brahmi) has been reported to strengthen mental faculties and help manage insomnia due to stress (18). Based on a previous report involving *Ocimum Sanctum* (Indian holy basil), and its two water-soluble flavonoids, orientin (Ot) and vicenin (Vc) (19), we have started an institutional review board approved study involving *Ocimum Sanctum* to assess for its radioprotective properties in a double blind, placebo controlled, randomized trial. One dose of the drug (or placebo) is given for four consecutive days prior to hemibody irradiation. The patients’ cell counts and biochemistry profile are serially measured at baseline and after hemibody irradiation.

In spite of the promise shown, some of these drugs have come under scrutiny because of reports that harmful levels of lead, mercury and/or arsenic are present in many ayurvedic remedies (20).

**TRADITIONAL CHINESE/JAPANESE MEDICINE**

Traditional Chinese medicine (TCM) consists of a wide range of techniques including acupuncture, electroacupuncture, herbal medicine and pharmacology. In this form of treatment, patient assessment is done by a range of diagnostic tools such as pulse taking, walk assessment, facial and tongue diagnosis and corresponds to the five elements (water, wood, earth, fire and metal) (21,22). Wong et al. in their review emphasized upon the importance of TCM in cancer supportive care by biological response modification, improving psycho-neuroimmunological function, improving symptom control and psycho-social betterment (22).

In a prospective randomized trial with 188 cancer nasopharynx patients, Xu et al. studied the effects of cancer ‘destag nation’ therapy using a herbal formula constituting Astralgi membranaceus, Paeoniae rubrae, Semen persica and Carthami tinctorii (23). In this trial, 90 patients were allotted to the destagnation group (radiation plus destagnation) and 98 to the control group (radiation only). The combined treatment group showed a statistically significant improvement in local control and overall survival (*P* < 0.05). The rate of local recurrence and 5-year DFS was 14 and 53% in intervention group versus 29 and 37% in RT alone group, respectively. This reduced rate of local recurrence at the primary site in the Destagnation group suggests that destagnation may be an effective radiosensitizer. Herbal medicines are in particular being extensively researched and used in prostate cancer patients. Several investigators have studied a herbal agent, PC-SPES in androgen-independent prostate cancer (AIPC). In one analysis, 52% of patients had a PSA decline (50%) wherein a median time from the start of therapy to PSA progression was 6 months (24). Small et al. reported 19 (54%) of 35 AIPC patients had a PSA decline ≥50%. Median time to PSA progression was 4 months. PC-SPES was well tolerated in the patient group studied (25).

TCM widely emphasizes the importance of Green tea (*Camellia sinensis*) and Panex Ginseng as dietary supplements in decreasing cancer induction rates and recurrence. Green tea contains isoflavones and a powerful antioxidant, epigallocatechin which potentiates cancer cell death by apoptosis and antiangiogenesis (26,27). Panex Ginseng may induce differentiation of neoplastic cells (28). Both dietary supplements appear to work through novel mechanisms, of signaling and communication, through the body—mind network to restore the normal inter-cellular communication through gap junctions (29). Thus, there is some preliminary evidence that TCM maybe useful when integrated into mainstream cancer care as a vital supportive therapy.

**ACUPUNCTURE, ACUPRESSURE AND ELECTROACUPUNCTURE**

All traditional Chinese medical theory is based on the Taoist concept of yin and yang and the flow of Qi (energy) along hypothesized channels of the body. Practitioners of acupuncture view acupuncture points as corresponding to physiological and anatomical features such as peripheral nerve junctions. A phase II trial involving 183 cancer patients treated with acupuncture reported a 47% reduction in pain experience (30). A randomized, control trial by Dibble et al. suggested that simple finger acupressure at the P6 acupuncture point can decrease nausea and vomiting in cancer patients (31). In a study by Roscoe et al. (32), 86 breast cancer patients were randomized to one of the three groups: standard care, standard care with acupressure bands and standard care with an acustimulation band. The proportion of patients in the acupressure band group who reported severe nausea following their chemotherapy treatment (41%) was significantly less than that of the standard care group (68%) and the acustimulation band group (73%). The study suggested that acupressure wristbands were efficacious against nausea. Mehling et al. (33) studied the effects of acupuncture and massage for the management of perioperative symptoms in cancer patients. One hundred and thirty-eight patients were randomly assigned in a 2:1 scheme to receive massage and acupuncture (*n* = 93) or to receive usual care only (*n* = 45). Patients in the intervention arm experienced a reduction of 1.4 points on a 0–10 pain scale, versus 0.6 in the control group (*P* = 0.038), and a decline in depressive mood of 0.4 on a 1–5 scale compared with ±0 in the control group (*P* = 0.003). They concluded that massage and acupuncture in addition to usual care resulted in decreased...
Energy Therapies

Tai Chi (TCC) is a mind–body practice, used in Asian culture for centuries to improve wellness and reduce stress, and is a moderate form of exercise that may be an effective therapy for improving health-related QOL (HRQOL) and self-esteem among its users (35,36). In an RCT by Mustian et al. (35), 21 women diagnosed with breast cancer, who had completed treatment within the last 30 months, were randomized to receive 12 weeks of TCC or psychosocial support. HRQOL and self-esteem were assessed at baseline, 6 weeks and 12 weeks. The TCC group had significant improvements in HRQOL, whereas the psychosocial support group reported declines in HRQOL, with the differences between the two groups approaching significance at week 12. Most of these trials have suffered from methodological flaws like small sample size, inadequate study design and poor reporting. As such, firm evidence supporting the use of TCC as an effective supportive treatment for cancer is yet unavailable. Other similar therapies include Qi-gong, which in matched control studies were found to have favorable effects on cell counts in breast cancer patients (37).

Reiki

Reiki is a Japanese technique for stress reduction and relaxation that also promotes healing. It is administered by ‘laying on hands’ and is based on the idea that an unseen ‘life force energy’ flows through us and is what causes us to be alive. If one’s ‘life force energy’ is low, then one is more likely to get sick or feel stressed, and if it is high, one is more capable of being happy and healthy. It has been used to counteract pain, fatigue and anxiety. In a study of 24 cancer patients by Olson et al. (38), comparison of pain, QOL and analgesic use was done. Participants in Reiki arm experienced improved pain control on first and fourth day following treatment, and improved QOL, but no overall reduction in opioid use was observed when compared with the control group.

Tsang et al. examined the effects of Reiki on fatigue, pain, anxiety and QOL. Sixteen patients (13 women) participated in the trial: eight were randomized to each order (39). They were screened for fatigue on the ESAS tiredness item, and those scoring greater than three on the 0–10 scale were eligible for the study. Majority of the patients (62.5%) had colorectal cancer. Fatigue on the FACT-F (Functional assessment of Cancer Therapy-Fatigue subscale) decreased within the Reiki condition ($P = 0.05$) along with significant improvements in QOL [FACT-G (general version) versus those in the resting condition ($P < 0.05$)].

Electromagnetic-based Therapies

Magnetotherapy provides a noninvasive, safe and easy method to directly treat the site of injury, the source of pain and inflammation and other types of disease (40).

Electroporation by using pulsed electric fields with long durations compared with the charging time of the plasma membrane can induce cell fusion or introduce xenomolecules into cells (41). Beebe et al. (41) studied the effects of nanosecond (10–300 ns) pulsed electric fields (nsPEF) on cell structure and function. They found that nsPEF induced apoptosis within 10 min, depending on the pulse duration. They concluded that nsPEF technology provides a unique, high-power, energy-independent tool to recruit plasma membrane and/or intracellular signaling mechanisms that can delete aberrant cells by apoptosis. This form of therapy has not been tested in a trial setting.

Mind–Body Manipulations

Hypnotherapy and Imagery

Hypnosis is useful in attaining relaxation, overcoming insomnia, helping the patient achieve pain relief and, most particularly, teaching the patient to work with relatives and other persons close to them, as caregivers in a special relationship that maybe an important source of relief to the patient (42).

In a study by Gruber et al. (43), which included 13 early breast cancer patients, significant effects were found in natural killer cell (NK) activity ($P < 0.017$), mixed lymphocyte responsiveness ($P < 0.001$), concanavalin A (Con-A) responsiveness ($P < 0.001$), and the number of peripheral blood lymphocytes ($P < 0.011$). No significant psychological changes were detected; however, reductions were seen in psychological inventory scales measuring anxiety. Another similar study on breast cancer patients found a significant increase in improvement in depression ($P < 0.04$) score and increase in absolute number of NK cells, but these were not maintained at the 3-month follow-up (44).

Yoga

Yoga is an ancient Indian art, although its versions have been practiced in Tibet, China and Japan. Yogic exercises
(Asanas), meditation, Pranayama (breathing techniques) have been claimed to help soothe the agitated mind, improve metabolism and reduce pain in patients suffering from malignancy. Yoga relates diseases to various charkas (wheels) located in the spine, each taking care of a portion of the body. One of the first published studies of yoga for cancer patients was conducted in India (45). This early trial, which lacked a control group, examined the effects of yoga in 50 ambulatory cancer patients undergoing daily radiation therapy. Patients were asked to report whether or not they perceived benefits in particular domains. Benefits reported included improved appetite (22%), improved sleep (22%), improved bowel habits (26%) and feeling of peace and tranquility (20%).

Table 2 gives an overview of the trials in various yogic techniques in cancer patients (45–48). In 2004, Cohen et al. (46) published a randomized, controlled trial of Tibetan yoga in 39 patients with Stages I–IV lymphoma. The intervention consisted of controlled breathing and visualization followed by simple postures from the Tibetan yoga practices of Tsa lung and Trul khor done with specific breathing patterns. The general goals of the intervention were to reduce stress and improve patients’ QOL. Yoga group participants reported significant improvements in overall sleep quality compared with controls, including falling asleep more quickly, sleeping longer and using fewer sleep medications.

### PHARMACOLOGIC AND BIOLOGIC TREATMENTS

#### Burzynski

Burzynski (49), a biochemist, discovered that peptides and hormones including butyric acid and phenylbutyrate when added to cancer cells results in their differentiation, converting them into normal cells again. Clinical trials have, however, failed to accrue patients to test this exciting concept. In the solitary Phase II study, Antineoplastons [consisting of antineoplaston A10 (A10I) and AS2-1 injections] were given intravenously in escalating doses. The overall survival at 2 and 5 years was 39 and 22%, respectively, and maximum survival was more than 17 years for a patient with anaplastic astrocytoma and more than 5 years for a patient with glioblastoma. Progression-free survival at 6 months was 39%. Complete response was achieved in 11%, partial response in 11%, stable disease in 39% and progressive disease in 39% of patients (50).

#### LAETRILE

Laetrile consists of a single compound isolated from apricot pits or almonds. Proponents of this invented ‘vitamin B17’ claim that it can completely eradicate malignancy from the planet (www.worldwithoutcancer.com; www.sumeria.net/health/leatrile.html) (51). In a systematic review of Laetrile as an alternative treatment it was found there were no clinical trials and only 36 reports in the form of case series or case reports on the benefits of laetrile (52).

#### SHARK CARTILAGE

Shark cartilage’s popularity stems from a general belief that sharks rarely get cancer because of the high proportion of cartilage in their body. In a randomized, placebo-controlled, double-blind, clinical trial by Loprinzi et al. (53), 83 patients with incurable breast or colorectal carcinoma with good performance status and organ function was selected. Patients were all to receive standard care and were then randomly selected to receive either a shark cartilage product or an identical placebo three to four times each day. However, the data revealed no difference in overall survival between patients in both groups.

#### Di Bella Therapy

Di Bella therapy is based on a combination of somatostatin, vitamins, retinoids, melatonin, and bromocriptine. Luigi Di Bella claimed that his treatment stimulates the body’s self-healing properties without damaging healthy cells (54). A phase II trial studying the Di Bella therapy in 386 cancer patients revealed dismal results with a partial remission in three patients; one each of NHL, breast cancer and...
pancreatic cancer. At the second examination, 12% of the patients had stable disease; 52% progressed and 25% died. There has been no conclusive proof recommending the use of this therapy.

NUTRITIONAL THERAPEUTICS

METABOLIC THERAPY

A review on dietary factors in cancer prevention by Williams et al. correlated the consumption of fruits, vegetables and whole grains to a definite decrease in the risk of certain malignancies (55). Simopoulos (56) extensively studied the diet of Greek prior to 1960 and found that their dietary pattern consisted of large intake of fruits and wild vegetables. De Jongeril et al. (57) compared the overall survival and cancer rate among 605 patients with coronary heart disease randomized in the Lyon Diet Heart Study. In this study, patients were randomized to either a cardio-protective Mediterranean-type diet or a control diet close to the step 1 American Heart Association prudent diet. At 4-year follow-up, the reduction of risk in experimental subjects compared with control subjects was 61% (P = 0.05) for cancers and 56% (P = 0.03) for total deaths. Simopoulos (56) in his review reported the various mechanisms contributing to the anticancer property which includes suppression of neoplastic transformation and cell growth inhibition by n-3 fatty acids.

Gerson therapy involves eating a low salt, high potassium and low fat vegetarian food. One glass of crushed vegetable juice is consumed each hour, 13 times a day. In addition, patients are given several daily coffee enemas. Molassiotis et al. (58) studied the effect of Gerson therapy, an alleged anticancer metabolic therapy in six patients with metastatic disease who had been or were using it. All six patients had a cancer diagnosis with poor prognosis. Despite the presence of some confounding variables, it appeared that the Gerson regimen has supported patients both physically and psychologically to some extent. The research by Hildenbrand et al. (59) included 153 patients with melanoma who received the Gerson therapy. They found 100% survival rate at 5 years for all the 14 patients with Stage I and II disease, 70 and 39% survival rates, respectively, for Stage III and IVA patients. Though, this study was grossly flawed by non-randomized comparisons and subgroup analysis, the authors showed higher survival rates in comparison with that found in literature.

EXERCISE

There have been quite a few experimental exercise intervention studies during and after cancer management, which have shown an improvement in QOL. The first study by Winningham and MacVicar (60) tested the effects of a thrice weekly, 10-week aerobic program on nausea responses of patients with breast cancer. This was compared with a control non-exercise group and a placebo group doing low-intensity supervised flexibility training once weekly. A significant improvement in the symptoms of nausea was seen in the exercise group (P < 0.05).

The effect of daily bed cycling program during high-dose chemotherapy treatment in cancer patients followed by autologous blood cell transplantation was reported by Dimeo et al. (61). The intervention group had a higher level of physical performance during hospitalization (P < 0.05). Moreover, various physiological parameters like duration of neutropenia, thrombocytopenia and severity of diarrhea were significantly reduced after exercise intervention (P < 0.05).

In another study, he also demonstrated improvement in walking distance, walking maximal performance, heart rate and reduction in lactate concentration (P < 0.05) with a 6-week cardiovascular exercise program (62). A study by Na et al. (63) reported beneficial effects on natural killer-cell cytotoxic activity (NKCA) in patients with stomach cancer (exercise group—27.9% versus the control group—13.3%; P < 0.05). Similar findings have been reported from breast cancer patients (64,65).

Though CAM drug usage among the cancer patients is on the rise, we must be aware of the possible potential dangers of their concomitant administration with conventional allopathic oncologic medication, especially chemotherapeutic drugs. This is more so because of the small therapeutic range and steep dose–toxicity curve of the chemotherapeutic drugs. Investigators have demonstrated that substances like St John’s Wort increases imatinib clearance while grapefruit juice affects the oral bioavailability of etoposide, an effect which can altogether alter the outcome in cancer patients (66). However, we need to accept this challenge and rationalize with a meticulous understanding of pharmacokinetics and pharmacodynamics of CAM drugs in oncologic management. Certainly, a better knowledge of the drug–CAM interaction will safeguard patient safety and shall enable to individualize the CAM therapy in cancer patients and act as a guide for clinical trials. Table 3 gives a brief overview of the clinical trials on the impact of CAM in oncology care (67–75).

The substantial rise and the differential adoption of CAM as a medical modality are linked to many factors, namely age, sex, geographic variation, physician expertise, commercial factors, dissatisfaction with conventional treatments especially in advanced cancers and incorporation of these systems into national medical organizations (76). As an example, the Japanese National Insurance Policy covers traditional herbal medical system, Kampo under its umbrella and a large proportion of physicians practice it (77). Similarly, Ayurveda in India is fused into the national health system while TCM, which includes acupuncture, acupressure, herbal medicine, TCC and qi gong is practiced on similar platforms in general conventional hospitals across China (76). Certainly, national medical bodies have much greater role to play in the patients’ access to CAM.
### Table 3. Relevant clinical trials assessing various complementary and alternative medicine (CAM) modalities

<table>
<thead>
<tr>
<th>Study and level-grade of evidence</th>
<th>CAM modality</th>
<th>Clinical trial type</th>
<th>Objective</th>
<th>No. of patients</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dibble et al. (67) II-B</td>
<td>Acupressure</td>
<td>Multicenter Phase II</td>
<td>Differences in the chemotherapy-induced nausea and vomiting (CINV) among three groups of women (acupressure, placebo acupressure, and usual care) undergoing chemo-therapy for breast cancer</td>
<td>116</td>
<td>The acupressure group had a statistically significant reduction in the amount of ‘DELAYED’ vomiting and the intensity of nausea over time but no difference for control of acute episodes</td>
</tr>
<tr>
<td>Johnstone et al. (68) II-B</td>
<td>Acupuncture</td>
<td>Phase I</td>
<td>Efficacy in xerostomia refractory to pilocarpine therapy after Radiation Therapy for head and neck malignancy</td>
<td>18</td>
<td>Acupuncture contributed to relief from xerostomia to varying degrees</td>
</tr>
<tr>
<td>Olson et al. (69) II-B</td>
<td>Reiki</td>
<td>Phase II</td>
<td>Analgesia in Advanced Cancer Patients</td>
<td>24</td>
<td>Participants in Reiki arm experienced improved pain control, and improved QOL, but no overall reduction in opioid use</td>
</tr>
<tr>
<td>Evans and Rosner (70) II-B</td>
<td>Chiropractics</td>
<td>Systematic Review</td>
<td>Cancer pain management</td>
<td>–</td>
<td>The judicial use of chiropractic services is an effective strategy for reducing the pain and suffering of cancer</td>
</tr>
<tr>
<td>Piao et al. (71) II-C</td>
<td>Traditional Chinese medicine mistletoe extract (ME)</td>
<td>Multicenter Phase III</td>
<td>QOL in breast, ovarian and non-small cell lung cancer patients</td>
<td>233</td>
<td>Complementary treatment with Standardized ME can beneficially reduce the side-effects of chemotherapy in cancer patients and thus improve QOL, which was significant (P &lt; 0.05)</td>
</tr>
<tr>
<td>Balzarini et al. (72) II-C</td>
<td>Homeopathy</td>
<td>Phase I</td>
<td>Treatment of acute radiodermatitis</td>
<td>66</td>
<td>The differences of the scores of the Index of Total Severity during Radiotherapy were not statistically significant, but showed a trend towards a better activity of the homeopathic medicine compared to placebo. Total Severity during recovery, showed a statistically significant benefit of the active medicines over placebo</td>
</tr>
<tr>
<td>Kim et al. (73) II-C</td>
<td>Sun ginseng (SG)</td>
<td>Phase I</td>
<td>Subjective QOL in cancer patients</td>
<td>53</td>
<td>Sun ginseng beneficial in improving some aspects of mental and physical functioning in gynecologic or hepatobiliary cancer patients</td>
</tr>
<tr>
<td>Joshi et al. (74) III-C</td>
<td>Turmeric oil (Curcuma longa): Ayurveda</td>
<td>Phase I</td>
<td>Safety and Efficacy in human volunteers</td>
<td>9</td>
<td>No adverse clinical/biochemical event, potential for reversing oral submucous fibrosis</td>
</tr>
<tr>
<td>Batist et al. (75) II-C</td>
<td>Shark cartilage extract: neovastat (AE-941)</td>
<td>Phase II</td>
<td>Anti angiogenic effect beneficial in the treatment of renal cell carcinoma (RCC)</td>
<td>22 patients of RCC</td>
<td>Higher dose of Neovastat associated with a survival benefit in RCC</td>
</tr>
</tbody>
</table>
CONCLUSION
CAM, as we can see is a pandora box with traditional medicines, physical techniques and mental approaches. The heterogeneity of these techniques seems to be reflected in their reported efficacy as well. While some techniques show considerable promise, others seem to be out rightly inefficacious. Some modalities of CAM have potential in palliative therapy and in supportive strategies in the current cancer modalities. Given the methodologic difficulties in conducting clinical trials in palliative care, this task is undoubtedly difficult, expensive and time consuming. However, this should not be a deterrent to allow these modalities to pass through the grid of evidence-based medicine. Our understanding of CAM and the substantial body of preclinical and clinical data will eventually translate into integrating relevant CAM therapies into mainstream medicine with the goals of disease prevention, health promotion, improving patient outcomes, managing disease and treatment-related symptoms and improving QOL. Attention needs to be paid to the planning and development of health policies, a possible conduct of clinical trials to guide physicians’ and complementary practitioners’ practice of complementary therapies so as to ensure the safe use of these therapies by patients with cancer.

Conflict of interest statement
None declared.

References