J Cancer Res Clin Oncol (2017) 143:2267–2273
DOI 10.1007/s00432-017-2471-x

ORIGINAL ARTICLE – CLINICAL ONCOLOGY

Unmonitored use of herbal medicine by patients with breast cancer: reframing expectations

Noah Samuels[1] · Eran Ben-Arye[2,3] · Yair Maimon[1] · Raanan Berger[4]

Received: 16 May 2017 / Accepted: 27 June 2017 / Published online: 30 June 2017

Abstract
Purpose To identify the unmonitored use of herbal medicine by female patients with breast cancer, examining the impact of an integrative physician (IP) consultation on this practice.
Methods The files of 269 female patients with breast cancer following an IP consultation were surveyed retrospectively for use of herbal medicine for cancer-related goals. Expectations from the IP consultation and adherence to the IP-guided treatments were examined as well.
Results Among the cohort, 111 (41.3%) reported using herbal medicine for cancer-related goals, unmonitored by their oncology healthcare professional. Factors predicting herbal medicine use were the adoption of dietary changes (odds ratio = 13.6, $p < 0.001$, CI 7.16–26.0) and the expectation that the IP consultation and treatments would address cancer-related goals (odds ratio = 3.29, $p = 0.001$, CI 1.64–6.6). Patients with metastatic disease were more likely to be using herbal medicine than non-users (34.5 vs. 22.8%; $p = 0.088$), as were those who had consulted with a complementary/alternative medicine practitioner (54.9 vs. 20.8%; $p = 0.005$). The IP advised 17 patients (15.3%) to stop taking specific herbal products due to safety-related concerns; and 10 patients to take dietary supplements for relief of specific symptoms. Herbal medicine users were less likely than non-users to adhere to the IP-recommended treatment program (34.7 vs. 48.3%; $p = 0.037$).
Conclusions Unmonitored use of herbal medicine by patients with breast cancer is more frequent among those adopting dietary changes for cancer-related goals. Integrative physicians provide evidence-based guidance on the safe and effective use of herbal products, and reframe patient expectations from cancer-related goals to reducing symptoms and improving quality of life.

Keywords Herbal medicine · Breast cancer · Complementary/integrative medicine · Safety · Herb–drug interaction

Introduction

Patients with breast cancer frequently report using complementary medicine (CM), either for reducing symptoms and improving quality of life (QoL); or for cancer-related goals, such as improving rates of survival, preventing disease recurrence and "strengthening" the body's immune system (Boon et al. 2007; Matthews et al. 2007; Saibul et al. 2012). Many cancer centers provide CM treatments, as part of their supportive care service (Ben-Arye et al. 2013). This ensures a safe environment in which CM treatments are non-toxic and do not negatively interact with conventional anti-cancer treatment (Deng 2008; Frenkel et al. 2010). The stated goal of these integrative CM services is the reduction of symptoms, as well as improving QoL-related outcomes and functioning.

✉ Noah Samuels
noah.samuels@sheba.health.gov.il

[1] Tal Center for Integrative Oncology, Institute of Oncology, Sheba Medical Center, 2 Derech Sheba Road, Tel-Hashomer, 52621 Ramat Gan, Israel

[2] Integrative Oncology Program, Oncology Service and Lin Medical Center, Clalit Health Services, Haifa and Western Galilee District, Haifa, Israel

[3] Complementary and Traditional Medicine Unit, Department of Family Medicine, Faculty of Medicine, Technion-Israel Institute of Technology, Haifa, Israel

[4] Institute of Oncology, Sheba Medical Center, Tel Hashomer, Israel

Herbal medicine is one of the most popular CM modalities being used by patients with breast cancer (Matthews et al. 2007). Herbal medicinal products have long been considered by the general public to be both effective and safe (Eisenberg et al. 1993), and indeed many of today's chemotherapeutic agents are derived from botanical sources (Cragg and Newman 2005). A number of herbal products have been shown to be effective in reducing the frequency and severity of symptoms associated with cancer and its treatment, such as the use of ginger for chemotherapy-induced nausea and vomiting (Konmun et al. 2017) and ginseng for cancer-related fatigue (Barton et al. 2013). Herbal medicine use is, however, most often unmonitored by the oncology healthcare professional. The reason for this is that patients are usually reluctant to disclose their use of CM to oncologists, either because of an anticipated negative response or simply because they are not asked (Roberts et al. 2005). The unmonitored use of medicinal herbs can have a potentially negative impact on patient health, either through direct toxic effects or else negative interactions with conventional anti-cancer drugs (Ben-Arye et al. 2016).

Integrative physicians (IPs) are medical doctors who have undergone training in one or more CM modality, incorporating these practices into their biomedical work (Lewith and Aldridge 1991). The IP can, therefore, understand the "language" of both conventional and complementary medicine, mediating between the often conflicting health care paradigms of the two and thus offering patients "the best of both worlds". This is true for the oncology setting as well, where IPs serve as "gatekeepers", providing patients and oncology healthcare professionals evidence-based guidance on the use of CM treatments such as herbal medicine, in both an effective and safe environment.

The present study set out to examine the use of herbal medicine by female patients diagnosed with breast cancer, following an IP consultation conducted within a conventional oncology setting. Patients' symptoms and their adoption of dietary changes for cancer-related goals were identified, as were their expectations from the IP consultation and subsequent CM treatments. Adherence to the IP-recommended treatment program was evaluated as well. The role of the IP consultation, as it is provided within a conventional oncology setting, on the use of herbal medicine by female patients with breast cancer is discussed.

Methods

The electronic files of 269 female patients following an IP consultation at the study center, between 2013 and 2016, were surveyed retrospectively. Patients had either been referred to the consultation by their oncology healthcare professional (oncologist, oncology nurse or oncology social worker), or else had heard about the service and scheduled the appointment on their own. The IP consultation, lasting between 30 and 45 min, begins with a review of the patient's file for demographic and medical history, both cancer and non-cancer related. Patients are asked about specific symptoms related to their disease and treatments, as well as the impact of these symptoms on their QoL and daily functioning.

During the next stage of the consultation, patients are asked about their past and present use of CM, including herbal medicine and dietary changes, for both cancer and non-cancer-related outcomes. Patients are also asked whether they had consulted with a complementary/alternative medicine practitioner. The consultation concludes with the IP providing evidence-based guidance on the use of herbal medicine, as well as co-designing a CM treatment plan with the patient for the relief of symptoms and improving QoL-related outcomes. CM treatments are provided to interested patients at the study center, and are given on an individual basis (acupuncture, reflexology, shiatsu, homeopathy and nutritional guidance), as well as in groups (yoga, Chi Kong, meditation, etc.).

During the consultation, the patient's expectations from the IP and goals of the recommended CM treatments are addressed, with the IP adopting a non-judgmental approach (Fig. 1). Patients who express an expectation that the IP consultation and CM treatments can offer relief from symptoms and improve QoL are referred to individual and group-based CM therapies. For patients whose expectation is to receive guidance on the use of herbal medicine and dietary changes for cancer-related goals, the IP provides evidence-based guidance, reframing expectations from "curing" the disease to reducing symptoms and improving QoL. As part of this process, the IP may advise the patient to stop taking one or more herbal medicinal products, either due to potentially toxic effects or negative interactions with anti-cancer drugs. The IP may also recommend adding a dietary supplement, with the goal of reducing chemotherapy-induced symptoms and improving QoL; or else modifying the current dosing of the herbal product/s being used. The proceedings and recommendations of the IP consultation are entered into the patient's electronic medical file, which is accessible to the oncology staff at the hospital.

Data from the patient files were collated and entered into an SPSS software program (version 21; SPSS Inc., Chicago, IL, USA). Pearson's Chi-square test and Fisher's exact test were used to detect differences in the prevalence of categorical variables and demographic data between participants in both groups. A t test was performed to determine differences in continuous variables when normality was assumed. Where distribution was abnormal, a Mann–Whitney U test was used. p values of <0.05 were regarded as statistically significant. A multivariate logistic regression

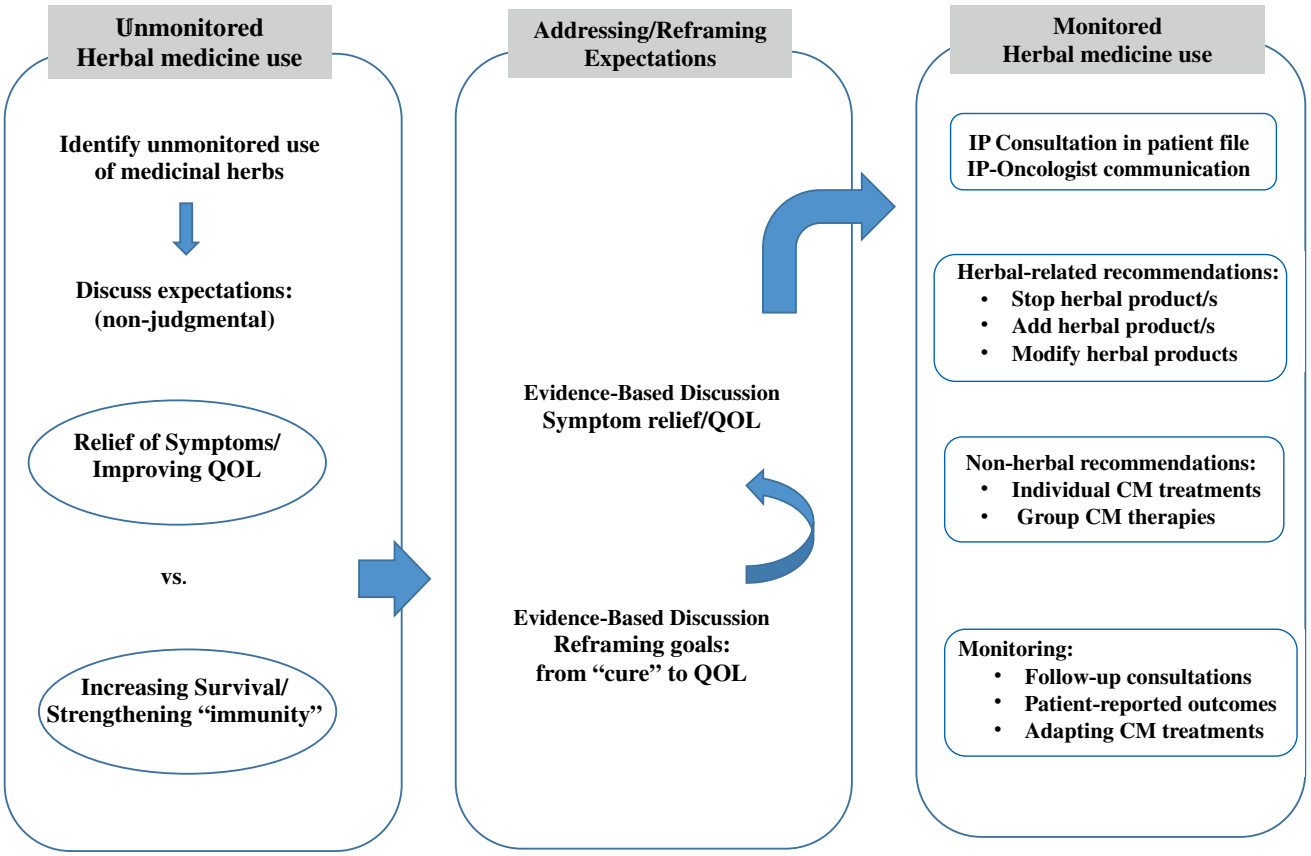

Fig. 1 Proceedings of the integrative physician (IP) consultation (see text). *IP* integrative physician, *QOL* quality of life, *CM* complementary medicine

model was used to assess the independence of the univariate variables. Adherence to integrative care (AIC) was defined as attending ≥4 CIM treatment sessions following the initial IP assessment, with ≤30 days between each session (Ben-Arye et al. 2014).

Results

The files of 269 female patients diagnosed with breast cancer who had attended an IP consultation were identified. Of these, 111 (41.3%) patients reported using herbal medicinal products for cancer-related goals (Table 1). Herbal medicine users and non-users had similar demographic (mean age; country of birth; employment status), and cancer treatment-related characteristics (history of surgical procedure; current treatment regimen and setting), though patients with metastatic disease were more likely to be using herbal medicine than non-users (odds ratio = 1.85, 95% CI 0.912–3.761; $p = 0.088$). The symptoms most frequently reported by the cohort included weakness and/or fatigue (64.7%); gastrointestinal complaints (42.0%); pain-related concerns (53.5%); symptoms associated with peripheral neuropathy (36.4%); endocrine-related symptoms, primarily hot flashes (34.9%); emotional distress or depressive mood (20.4%); and disturbed sleep (9.7%). No differences were found between the two groups with respect to the symptoms reported. No mention of herbal medicine use was found in any of the patient electronic medical files.

Nearly a quarter of patients ($n = 64$) had been referred to the IP consultation by their oncology healthcare professional, two-thirds by their oncologist ($n = 43$) and the remainder by an oncology nurse ($n = 17$) or social worker ($n = 4$). The purpose of the referral in all cases was to address symptoms and QoL-related concerns. No correlation was found between the source of the referral and the use of herbal medicine for cancer-related goals. Prior use of complementary medicine for non-cancer related goals was not found to be predictive of current herbal medicine use for cancer-related goals. At the same time, more than half of the patients using herbal medicine reported that they had consulted with a complementary/alternative medicine practitioner, as opposed to one-fifth of non-users ($p = 0.005$).

The most significant predictors for herbal medicine use were the adoption of dietary changes for cancer-related goals (odds ratio = 13.6, $p < 0.001$, 95% CI 7.16–26.0),

Table 1 Characteristics of female patients with breast cancer: use of herbal medicine for cancer-related goals

Characteristic	Total ($n = 269$)	Herbal medicine users ($n = 111$)	Non-users ($n = 158$)	p value
Demographic				
Age: mean ± SD (median)	51.9 ± 12.5	52.3 ± 12.3	51.8 ± 12.6	0.72
Israeli-born	204 (75.8%)	84 (75.7%)	120 (75.9%)	1.00
Presently employed	151 (70.6%)	55 (67.9%)	96 (72.2%)	0.54
Cancer-related				
Metastatic disease	74 (27.6%)	38 (34.5%)	36 (22.8%)	0.019
Status post surgery	197 (73.2%)	79 (71.2%)	118 (74.7%)	0.57
Treatment regimen				
Chemotherapy/biological	117 (43.5%)	50 (45.0%)	67 (42.4%)	0.71
Endocrine (hormonal)	96 (35.7%)	43 (38.7%)	53 (33.5%)	0.43
Radiation therapy	26 (9.7%)	10 (9.0%)	16 (10.1%)	0.84
Adjuvant/neoadjuvant setting	226 (84.3%)	89 (80.2%)	137 (87.3%)	0.13
IP consultation				
Referred to IP consultation by				0.17
Oncology healthcare professional	64 (23.8%)	22 (19.8%)	42 (26.6%)	
Self-referred	202 (75.1%)	89 (80.2%)	113 (71.5%)	
Past CM use (non-cancer-related)	217 (80.7%)	87 (78.4%)	130 (82.3%)	0.43
Dietary changes (cancer-related)	106 (39.4%)	82 (73.9%)	24 (15.2%)	<0.0001
Guided by CM/alternative practitioner	50/106 (47.2%)	45 (54.9%)	5 (20.8%)	0.005
Expectations from IP consultation				
Impact cancer and/or immunity	79 (29.4%)	54 (48.6%)	25 (15.8%)	0.001
IP Recommendations				
General (effectiveness/safety)	127 (47.2%)	79 (71.2%)	48 (30.4%)	<0.005
Stop herbal medicine		17 (15.3%)		NR
Add herbal medicine	26 (9.7%)	14 (12.6%)	12 (7.6%)	0.35
Modify herbal dose	0	0	0	NR
CM treatment regimen				
Adherent to CM treatment regimen	107 (42.8%)	35 (34.7%)	72 (48.3%)	0.037

CM complementary medicine, *IP* integrative physician

and the expectation that the IP consultation and CM treatments would address cancer-related goals (odds ratio = 3.29, $p = 0.001$, 95% CI 1.64–6.6). The dietary changes which patients reported for cancer-related goals included a significant reduction, sometimes abstention, from processed or other forms of sugar; all dairy or meat products; cooked vegetables, etc. In addition, many patients reported drinking "green shakes", adding turmeric to their diet, eating "raw foods", and more. A multivariate analysis found dietary changes and herbal medicine use to be moderately correlated (Lambda test, $r = 0.51$), with a high level of significance ($p < 0001$).

Most of the patients who reported using herbal medicine for cancer-related goals were given general, evidence-based guidance by the IP on the ability (or lack thereof) of herbal medicine to "cure" cancer or "strengthen immunity". This information was provided to more than 70% of herbal medicine users, as opposed to only 30% of non-users, who had expressed an interest in taking herbals for this goal ($p < 0.005$). The IP recommended that 17 patients (15.3%) stop taking specific herbal products, because of potentially toxic effects and/or negative interactions with conventional drugs (Table 2). At the same time, 10 patients in the entire cohort (3.7%) were advised to add a dietary/herbal supplement to their regimen, with the goal of reducing chemotherapy-related toxicities. The IP referred the overwhelming majority ($n = 253$) of the cohort to one or more of the individual CM therapies provided at the study center. The remainder were either not interested in pursuing any treatment for QoL-related goals ($n = 2$); lived far from the study center, and were, therefore, referred to another integrative oncology service nearer to them ($n = 2$); expressed their intention to continue CM treatments with their complementary/alternative medicine practitioner ($n = 4$); or were referred to treatments which did not entail weekly visits (i.e., homeopathy and integrative nutritional consultation;

Table 2 IP recommendations on herbal medicine use: reasons for advising patients to stop using specific herbal products

Herbal medicinal product	Reasons for recommendation to stop using
1. Potential for toxicity	
Essiac tea	Taken by patients for purported "anti-cancer" effects. Shown to stimulate in vitro growth of human breast cancer cells, both via estrogen receptor (ER)-dependent and ER-independent pathways (Kulp et al. 2006)
Acetyl-L-carnitine	Taken by patient for taxane-induced peripheral neuropathy. Though beneficial for diabetic neuropathy, it was shown to have no effect at 12 weeks and to increase symptom severity at 24 weeks in patients with chemotherapy-induced neuropathy (Hershman et al. 2013)
Curcumin and omega-3 supplements	Taken by a patient for "anti-cancer" effects. The patient reported recurrent episodes of epistaxis, with normal coagulation tests. Omega-3 has potential anti-coagulant activity (Heller et al. 2002); and curcumin both anti-coagulant and anti-platelet activity (Prakash et al. 2011)
2. Potential for herb–drug interaction	
Hypericum perforatum (St. John's Wort)	Significantly induces CYP3A4/CYP2C9 and P-glycoprotein activity, reducing drug bioavailability of a number of anti-cancer agents (Haefeli and Carls 2014)
Ephedra foemina (Alanda)	Shown to reduce in vitro anti-cancer activity of cisplatin and carboplatin on breast cancer cell cultures (Ben-Arye et al. 2016)
Green tea (epigallocatechin gallate, EGCG)	EGCG shown to increase oral bioavailability of tamoxifen, increasing the potential for interactions (Shin and Choi 2009)

IP integrative physician

$n = 6$). All patients were given the schedule for the group therapeutic interventions. Of the patients referred to weekly individual CM therapies, 107 (42.3%) were found to be adherent to the program, with herbal medicine users less likely to adhere to the program than non-users ($p = 0.037$).

Discussion

Female patients with breast cancer frequently turn to CM for relief of their suffering, as well as improving treatment-related outcomes. The present study found that 41.3% of the cohort reported using herbal medicine for cancer-related goals, unmonitored by their oncology healthcare professional. Patients who reported adopting dietary changes for cancer-related goals had a 13.6-fold increase in their use of herbal medicine for this purpose. Those expressing an expectation that the IP consultation and CM treatments would provide additional therapies (herbal or other) for this purpose had a 3.3-fold increase in herbal medicine use. During the IP consultation, 17 patients (15.3% of herbal medicine users) were advised to stop taking at least one herbal product due to safety-related issues, and 10 to add a supplement for the relief of symptoms.

Improving QoL-related outcomes with CM therapies such as herbal medicine has been shown to reduce the need for conventional drugs used in cancer care, such as non-opioid analgesics (Shalom-Sharabi et al. 2017). However, the unmonitored use of herbal products by patients with cancer can have significant implications regarding the effectiveness and safety of their care. A number of botanical-based drugs, such as the anti-cancer agent paclitaxel (derived from the Pacific Yew tree), have undergone the rigorous process of drug development, and have been incorporated into conventional cancer treatment regimens (Barbuti and Chen 2015). Yet the overwhelming majority of herbal medicinal products being used by patients for cancer-related goals have not be subjected to the same rigorous process as conventional drugs, and many have safety-related issues. The adoption of dietary changes for cancer-related goals has also not been supported by the research, and a number of the more extreme diets being adopted for this purpose have been shown to be both ineffective and even dangerous (Huebner et al. 2014).

The findings of the study have a number of practical implications. Oncology healthcare professionals need to be aware of the unmonitored use of herbal medicine by their patients, as well as their adoption of dietary changes for cancer-related outcomes and the link between these two health-related behaviors. Many oncologists agree that providing advice on CM is an important service, even though their knowledge in this field is often limited (Corina et al. 2016). Integrative physicians should be included as part of the conventional oncology staff, to identify the use of herbal medicine and other CM therapies, and to provide evidence-based guidance on the safe and effective use of these practices (Ben-Arye et al. 2016). This may require the IP to reframe patient expectations, from one of "curing" the disease to reducing symptoms and improving QoL. Each interaction between the IP and the patient needs to be entered into the patient's electronic medical file, as part of their communication with the patient's oncology health care professionals.

Table 3 Questions which can help identify the use of herbal medicine for cancer-related goals by female patients with breast cancer

Question goals	
1. Identifying the use of herbal medicine for cancer-related goals (see text)	Are you taking any herbal medicine product, dietary/nutritional supplement, or any "natural" medication to treat your cancer or immune system? Are you adding any "natural" medication, herbal remedy, spice or other plant product to your food, to treat your cancer or immune system?
2. Identifying the monitoring of herbal medicine use	Does your oncologist or nurse-oncologist know that you are using herbal medicine? If so, how did they react to this information? Are you being guided on the use of herbal medicine by a complementary/alternative medical practitioner?
3. Identifying factors predicting the use of herbal medicine	
(a) Adoption of dietary changes for cancer-related goals	Have you made any changes to your diet, to treat your cancer or immune system: (i) reducing or abstaining from certain types of food (sugar and carbohydrates; dairy or meat products; cooked vegetables) (ii) adding certain types of food to the diet ("green shakes"); eating only uncooked vegetables ("raw food"); etc
(b) Expectations from the IP consultation and CM treatments	What is your expectation regarding the impact of the consultation with the integrative physician and complementary treatment program: (a) reducing symptoms, improving quality of life (b) increasing survival, reducing disease recurrence, "strengthening" the body's immune system
4. Creating a non-judgmental and open dialogue on herbal medicine use	Do you have any questions on the effectiveness and safety of specific herbal medicinal products? How about dietary changes? Would you like to sit with your oncologist and an integrative physician, to discuss ways in which you can integrate herbal medicine in your treatment, without negatively affecting your anti-cancer treatment?

CM complementary medicine, *IP* integrative physician

The present study has a number of limitations which needs to be addressed in future research, especially regarding the role of the IP in the conventional oncology setting. The study was retrospective and examined a patient population from central Israel, the majority of which were Israeli-born and currently employed. Other populations, such as those from the periphery of the country with its lower socio-economic status, may report different rates of CM use, including that of herbal medicine. In addition, the study examined the proceedings of only one of many integrative oncology centers currently operating in Israel. Each of these services has its own approach to integrating CM in cancer care, defined by their relationship with the oncology department at their respective oncology center. Nevertheless, the retrospective approach of the study enabled the researchers to identify factors predicting the use of herbal medicine by patients for cancer-related goals. These findings can serve as an important baseline from which prospective research on this subject can continue, enhanced by including questions which can increase the likelihood of identifying the use of herbal medicine among patients with breast cancer (Table 3).

In conclusion, patients with breast cancer frequently use herbal medicinal products for cancer-related goals, especially those adopting dietary changes and expressing an expectation that the IP consultation will address these goals. Integrative physicians need to become part of the conventional oncology team, providing evidence-based guidance for the safe and effective use of these products, as well as reframing patients' expectations toward realistic treatment goals.

Acknowledgements We wish to thank Ms. Ronit Leiba for her assistance with the statistical analysis.

Compliance with ethical standards

Funding No funding was provided for this study.

Conflict of interest There is no conflict of interest for any of the authors.

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

References

Barbuti AM, Chen ZS (2015) Paclitaxel through the ages of anticancer therapy: exploring its role in chemoresistance and radiation therapy. Cancers Basel 7(4):2360–2371

Barton DL, Liu H, Dakhil SR, Linquist B, Sloan JA, Nichols CR, McGinn TW, Stella PJ, Seeger GR, Sood A, Loprinzi CL (2013) Wisconsin Ginseng (*Panax quinquefolius*) to improve cancer-related fatigue: a randomized, double-blind trial, N07C2. J Natl Cancer Inst 105(16):1230–1238

Ben-Arye E, Schiff E, Zollman C, Heusser P, Mountford P, Frenkel M, Bar-Sela G, Lavie O (2013) Integrating complementary medicine in supportive cancer care models across four continents. Med Oncol 30(2):511

Ben-Arye E, Kruger D, Samuels N, Keinan-Boker L, Shalom T, Schiff E (2014) Assessing patient adherence to a complementary medicine treatment regimen in an integrative supportive care setting. Support Care Cancer 22(3):627–644

Ben-Arye E, Samuels N, Goldstein LH, Mutafoglu K, Omran S, Schiff E, Charalambous H, Dweikat T, Ghrayeb I, Bar-Sela G, Turker I, Hassan A, Hassan E, Saad B, Nimri O, Kebudi R, Silbermann M (2016) Potential risks associated with traditional herbal medicine use in cancer care: a study of Middle Eastern oncology health care professionals. Cancer 122(4):598–610

Boon HS, Olatunde F, Zick SM (2007) Trends in complementary/alternative medicine use by breast cancer survivors: comparing survey data from 1998 and 2005. BMC Womens Health 7:4

Corina G, Christine H, Klein G (2016) Oncologists' experiences of discussing complementary and alternative treatment options with their cancer patients. A qualitative analysis. Support Care Cancer 24(9):3857–3862

Cragg GM, Newman DJ (2005) Plants as a source of anti-cancer agents. J Ethnopharmacol 100:72–79

Deng G (2008) Integrative cancer care in a US academic cancer centre: the Memorial Sloan–Kettering experience. Curr Oncol 15(Suppl 2):s108.es68–s108.es71

Eisenberg DM, Kessler RC, Foster C, Norlock FE, Calkins DR, Delblanco TL (1993) Unconventional medicine in the United States. Prevalence, costs, and patterns of use. N Engl J Med 328:246–252

Frenkel M, Cohen L, Peterson N, Palmer JL, Swint K, Bruera E (2010) Integrative medicine consultation service in a comprehensive cancer center: findings and outcomes. Integr Cancer Ther 9(3):276–283

Haefeli WE, Carls A (2014) Drug interactions with phytotherapeutics in oncology. Expert Opin Drug Metab Toxicol 10(3):359–377

Heller AR, Fischer S, Rossel T, Geiger S, Siegert G, Ragaller M, Zimmerman T, Koch T (2002) Impact of n-3 fatty acid supplemented parenteral nutrition on haemostasis patterns after major abdominal surgery. Br J Nutr 87(Suppl 1):S95–S101

Hershman DL, Unger JM, Crew KD, Minasian LM, Awad D, Moinpour CM, Hansen L, Lew DL, Greenlee H, Fehrenbacher L, Wade JL 3rd, Wong SF, Hortobagyi GN, Meyskens FL, Albain KS (2013) Randomized double-blind placebo-controlled trial of acetyl-L-carnitine for the prevention of taxane-induced neuropathy in women undergoing adjuvant breast cancer therapy. J Clin Oncol 31(20):2627–2633

Huebner J, Marienfeld S, Abbenhardt C, Ulrich C, Muenstedt K, Micke O, Muecke R, Loeser C (2014) Counseling patients on cancer diets: a review of the literature and recommendations for clinical practice. Anticancer Res 34(1):39–48

Konmun J, Danwilai K, Ngamphaiboon N, Sripanidkulchai B, Sookprasert A, Subongkot S (2017) A phase II randomized double-blind placebo-controlled study of 6-gingerol as an anti-emetic in solid tumor patients receiving moderately to highly emetogenic chemotherapy. Med Oncol 34(4):69

Kulp KS, Montgomery JL, Nelson DO, Cutter B, Latham ER, Shattuck DL, Klotz DM, Bennett LM (2006) Essiac and Flor-Essence herbal tonics stimulate the in vitro growth of human breast cancer cells. Breast Cancer Res Treat 98:249–259

Lewith G, Aldridge E (eds) (1991) Complementary medicine and the European community. C.W. Daniel, Saffron Walden

Matthews AK, Sellergren SA, Huo D, List M, Fleming G (2007) Complementary and alternative medicine use among breast cancer survivors. J Altern Complement Med 13:555–562

Prakash P, Misra A, Surin WR, Jain M, Bhatta RS, Pal R, Raj K, Barthwal MK, Dikshit M (2011) Anti-platelet effects of Curcuma oil in experimental models of myocardial ischemia-reperfusion and thrombosis. Thromb Res 127(2):111–118

Roberts CS, Baker F, Hann D, Runfola J, Witt C, McDonald J, Livingston ML, Ruiterman J, Ampela R, Kaw OC, Blanchard C (2005) Patient–physician communication regarding use of complementary therapies during cancer treatment. J Psychosoc Oncol 23:35–60

Saibul N, Shariff ZM, Rahmat A, Sulaiman S, Yaw YH (2012) Use of complementary and alternative medicine among breast cancer survivors. Asian Pac J Cancer Prev 13:4081–4086

Shalom-Sharabi I, Samuels N, Lev E, Lavie O, Keinan-Boker L, Schiff E, Ben-Arye E (2017) Impact of a complementary/integrative medicine program on the need for supportive cancer care-related medications. Support Care Cancer. doi:10.1007/s00520-017-3726-4

Shin SC, Choi JS (2009) Effects of epigallocatechin gallate on the oral bioavailability and pharmacokinetics of tamoxifen and its main metabolite, 4-hydroxytamoxifen, in rats. Anticancer Drugs 20(7):584–588