Stepping from traditional to integrative medicine: perspectives of Israeli-Arab patients on complementary medicine’s role in cancer care

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**Background:** Limited research is available on the perspectives of patients with cancer regarding integration of complementary medicine (CM) in conventional supportive cancer care. The purpose of this study was to explore patients’ perspectives concerning CM integration within conventional oncology settings.

**Patients and methods:** A 27-item questionnaire was constructed and administered to a convenient sample of Arab patients receiving cancer care in three oncology centers in northern Israel.
Results: Of the 324 respondents (94.7% response rate), 124 of 313 (39.6%) reported the use of CM for cancer-related outcomes. A logistic regression model indicated that CM was used with active chemo- or radiotherapy treatment (EXP [B], 2.926, 95% confidence interval CI 1.276–6.708; P = 0.011) and a higher degree of spiritual quest (EXP [B], 3.425, 95% CI 1.042–11.253; P = 0.043). Herbal medicine was the leading CM modality (87.9% of CM users), which included the use of 28 plants and traditional remedies, of which 17 were used to improve QOL, with 5 of the herbs having potential interactions with chemotherapy. 83.1% of respondents stated that they would consult with a CM provider if CM were to be integrated into the oncology department. Patients’ expectation of CM consultation was clearly associated with expectations of QOL improvement, coping with cancer, and alleviating chemotherapy’s side-effects when compared with expectations of cancer cure (P < 0.0001). The three leading concerns which patients expected to be improved by integrative CM treatment were gastrointestinal symptoms (63.2%), fatigue (51.9%), and pain (40.5%).

Conclusions: Integrative CM consultations should focus on the improvement of QOL concomitant with safety concerns regarding potential drug–herb interactions. The need to integrate a nonjudgmental yet evidence-based CM consultation service may also be applicable to oncology institutions challenged with culturally diverse populations with a high prevalence of traditional medicine use.

Key words: integrative medicine, traditional Arab medicine, cross-cultural medicine, doctor–patient communication, quality of life, complementary medicine

Introduction

The use of complementary medicine (CM) is very common worldwide among people with cancer, at different stages of the diagnosis and treatment ranging from 30% to over 50% of patients during adjuvant chemo/radiotherapy, perioperative/ neoadjuvant, palliative, and surveillance phases [1]. During the two last decades, the concept of CM use in cancer care has dramatically changed from ‘alternative’ to complementary, which may also have some evidence-based merit. A growing number of randomized, controlled trials on the beneficial role of CM modalities in improving patients’ quality of life (QOL) reframed the attention of health care providers to the potential additive role of CM in supportive cancer care. On the other hand, clinicians have also become more aware of the potential risks of CM, mainly concerning herbal and dietary supplements, in altering oncology treatment efficacy through a mechanism of supplement–chemotherapy interaction. The increased awareness concerning patients’ motives for using CM has increased clinical research on CM’s role in QOL improvement, resulting in a greater understanding of potential risks involved in the uncontrolled use of CM. Increased clinicians’ awareness to CM potential risks have generated a change in attitude among clinical and administrative stakeholders, who have consequently integrated specified CM programs into their leading cancer centers [2]. Integrative oncology programs are operating in different settings of oncology services and are based on evidence-based practice, a rigorous efficacy and safety assessment of specific CM modalities, and an open nonjudgmental approach to patients’ health belief model [3]. Yet, integrative oncology programs vary in the degree of their integration, depending on the interrelation between the CM provider and the oncology team, and on the practical model of integration [4].

Research on cancer patients’ perspectives regarding CM integration in conventional cancer care is limited. Smithson et al. [5] conducted a systematic literature search of 26 qualitative studies of patients’ experiences of complementary therapy use after a diagnosis of cancer. They concluded that integrated advice and/or services were highly valued by patients. Lack of research on the integration of CM in cancer care is notable in developing countries and among minorities in developed countries, where CM use is associated religious and cultural context [6]. The Middle East has become a remarkable research setting for exploring this cross-cultural integration challenge [7]. Preliminary research focused on physicians’ and CM practitioners’ perspectives and on barriers to CM integration in supportive care of Arab patients [8]. The purpose of the present study was to explore perspectives of Arab patients receiving oncology care in Israel as to the use of CM and its integration in both the community and hospital cancer centers.

Patients and Methods

Study Sites and Participants

The study was conducted between July 2009 and February 2013, at three cancer care centers located in northern Israel. Two of the centers provide outpatient treatments to over 1000 oncology patients each year in a community-oriented secondary care setting. The other study site was the oncology institute at the Rambam Health Care Campus, involving the combined chemotherapy and radiotherapy outpatient center and the inpatient oncology department.

The study was designed as a convenient sample. Participation in the study was offered to patients in all stages of cancer who came to the centers to receive oncology consultation, follow-up monitoring, or provision of treatment in an outpatient setting including chemotherapy/radiotherapy in adjuvant, neoadjuvant or palliative settings. Participants had to be older than 18 years. Before initiation, the study was reviewed and approved by the Carmel and Rambam Medical Centers’ Helsinki Committees.

Study Design

A questionnaire was developed by the first (EBA) and last (ES) authors based on a comprehensive literature review of studies published in the Middle East and worldwide on cancer patients’ perspectives regarding CM use and the feasibility of CM integration in oncology care. Next, in-depth interviews were conducted with 24 patients in different phases of oncology treatment, and with 22 oncology care providers, 14 health care providers experienced in cancer care (e.g. paramedical practitioners), and 25 CM-practicing physicians and therapists. These individual interviews were complemented with three focus group discussions with oncologists, social workers, and administrative personnel working at the oncology service in...
the Lin Medical Center, Haifa, Israel. The above was followed by drafting a questionnaire based on leading themes, barriers, and debates identified in the literature review, and on individual interviews and group discussions. The questionnaire was presented to a focus group of five patients in different phases of cancer treatment in order to refine the questionnaire and improve its comprehensibility. The focus group participants varied in age, sex, education, health status, and CM use. Based on the focus groups’ feedback, the questionnaire was revised and then sent for reappraisal to a group of health care providers in oncology care. Following their comments, the questionnaire was further refined. The final Hebrew version of the questionnaire was translated into Arabic. Translation accuracy was validated by back translation of the questionnaires to Hebrew.

The authors decided to use a broad and understandable definition of CM that is commonly accepted in Israel: ‘Therapies often named alternative, complementary, integrative, natural, or folk/traditional medicine’. Added to this definition was a list of CM modalities that are prevalent in Israel among cancer patients (herbal medicine, dietary supplements and CM-related nutritional modalities, mind–body therapies, traditional medicine, Chinese medicine and acupuncture, manual and movement therapies, healing, homeopathy, anthroposophic medicine, and more).

The final version of the questionnaire consisted of 11 questions about patients’ demographics and 18 questions about patients’ use or attitudes toward CM and spiritual aspects, which included 14 limited-choice questions (yes, no, other, or not relevant), 4 multiple-choice questions and 11 questions with responses on a Likert-like scale. The concept of spirituality was limited to a spiritual quest defined as ‘interest in a spiritual (e.g. the meaning of life and its purpose) or religious quest’ and was assessed on a 1 (very low) to 7 (very high) scale.

Three research assistants were trained to assist in filling out the questionnaire and to present CM to interviewees as defined in the questionnaire, avoiding the inclusion of natural substances not used for cancer treatment. Patients were given the option of filling out the questionnaire themselves or having the questions read to them with the research assistant recording the answers.

Survey data were entered into a computer database for further analysis.

data analysis

Data were collated using an Excel spreadsheet (Microsoft 2010) and analyzed using the SPSS software program (version 18; SPSS, Inc., Chicago, IL). Pearson’s χ² test and Fisher’s exact test were used to detect differences in the prevalence of categorical variables and demographic data among the particip-

ants in various groups. Also, a t-test was carried out to determine any differences in the continuous variables when normality was assumed. In cases of non-normal distribution, the Mann-Whitney U test was used. P values of <0.05 were regarded as significant. A multivariate logistic regression model included the following variables: age, gender, employment status, education, religion, self-assessed religiosity, spiritual quest, cancer recurrence, and oncology care setting. Spiritual quest variable was coded to three categories (1–3, 4, and 5–7 points on a 1–7 scale). The covariates were selected based on previous studies examining CM use among Israeli-Arab general population [9] and pilot studies in the oncology setting [8].

Sample power calculation was calculated by Win Epi scope 2, with 95% confidence interval (95% CI) and power of 80%. The sample size was con-
ducted on the basis of the following assumption determined that at least 121 participant in each group (CM users versus non-CM users) had a 15% difference in their agreement to seek out CM if it were provided as part of the oncological service.

Reliability and validity of the questionnaire were assessed in regard to ques-
tions on patients’ main expectations of CM consultation (7 statements regarding patients’ daily functioning, coping, emotional and spiritual support, family support, chemotherapy side-effects reduction, and cancer cure). Internal consistency alpha Cronbach was calculated (0.81). Corrected item-total correlation of the seven statements ranged from 0.47 to 0.63. Patients’ expectations of CM consultation (supplementary Figure S1, available at Annals of Oncology online) were compared by repeated-measure test with Bonferroni adjustment. Expectations were defined based on a previous study examining Arab cancer expectations of CM [8].

literature search concerning herbs reportedly used for cancer-related outcomes

Latin and common names of herbs reported by CM users for cancer-related outcomes were searched in the scientific literature with regard to the following aspects:

- Evidence for use in Middle Eastern historical and ethno-botanical resources in relation to cancer care including QOL improvement. Two authors (EL and BS) reviewed historical and traditional data of the herbs identified in the study in Middle Eastern medical texts [10]. Each of the individual herbs reported by patients for cancer-related outcomes was searched independ-

ently in these resources using the key words ‘cancer’, ‘tumor’, and ‘lump’. In addition, the Medline database was searched for historical and ethno-botanical publications by matching the individual herb’s common/scientific name with the following keywords: cancer, history, ethno-botany, and symptoms specified by herbal users concerning their reason for using the remedy (e.g. symptom or QOL improvement).

- Literature search on basic research and clinical data concerning specific herbs including potential safety issues was carried out in Pubmed by three independent authors using the following key words: cancer, chemotherapy, in vitro, in vivo, cell culture, noncontrolled, and randomized, controlled studies, epidemiology studies, safety/risks, and interactions.

results

Participation in the study was offered to 342 patients of whom 324 responded (response rate 94.7%). Reasons for not participating in the study included patients’ reluctance to expose details or relate to their disease (7), concern over delaying their appointment with their oncology practitioner (7), engagement with social activity of relatives who visited the patient (3), and anxiety about their up-

coming appointment with the oncologist (1).

Of the 324 respondents, 313 reported the current or previous year CM use for cancer-related outcomes. CM use in this context was reported by 124 respondents (39.6%). The respondents’ demographic characteristics are shown in supplementary Table S1, available at Annals of Oncology online. There were no significant differences between the two groups in terms of age, sex, marital status, education, employment status, religion, and distribution of cancer site diagnosis (except for lower prevalence of breast cancer among CM users). Compared with non-CM users, CM users for cancer-related outcomes had higher cancer recurrence rate (P = 0.04), and were receiving more active cancer treatment of chemo/radiotherapy (compared with surveillance, P = 0.043). Also, CM users rated higher the level of their spiritual quest (P = 0.015), defined as having interest in a spiritual (e.g. the meaning of life and its purpose) or a religious quest.

A logistic multivariate regression model was conducted to assess the independency of the above variables (supplementary Table S2, available at Annals of Oncology online). CM use for cancer-related outcomes was associated with active chemo or radiotherapy treatment (EXP [B], 2.926, 95% CI 1.276–6.708; P = 0.011) and a higher degree of spiritual quest (EXP [B], 3.425, 95% CI 1.042–11.253; P = 0.043).

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use of herbal and other CM modalities

Herbal medicine was the leading CM modality used for cancer-related outcomes (109 of 124 CM users, 87.9%) followed by CM-related nutritional counseling (41.5%), traditional Arab medicine (14.3%), dietary supplements (12.5%), Chinese medicine and acupuncture (10%), manual/movement (5.8%) and mind-body therapies (5%), healing (4.1%), anthroposophic medicine (2.5%), and homeopathy (1.7%). Recommendation of herbal use by traditional or CM practitioners was reported by only 39.8% of herbal users. Herbal use was significantly more prevalent compared with any other CM modality ($P < 0.0001$).

Herbal medicine users reported consuming 26 different individual herbs and 2 animal-originated remedies (honey and camel milk) (Supplementary Table S3, available at Annals of Oncology online). Of these 28 remedies, 22 are often used in Arabic cuisine as food, spices, or teas (black cumin, sage, olive oil, dates, etc.). Thirty-two patients had reported the use of herbal capsules that lacked any tag on the package. Consumers were unaware of the capsules’ ingredients (often the herbal mixtures were considered by the manufacturers or the herbal practitioners as a professional secret) or of the product’s quality (accuracy of plants’ identification, harvesting, preparation, storage, monitoring of active ingredients, additives, and contaminants).

The main reasoning for herbal use referred to improvement of QOL, which included alleviating urination (6), fatigue (2), abdominal distention (4) and pain (3), constipation (3), anxiety (2), mouth sores (1), dyspnea (1), jaundice (1), radiation side-effects (1), headache (1), reducing catarrh (1), and overcoming hematological toxicities (3). Patients associated the use of seven herbs with curing cancer, and/or boosting the immune system. In 11 of the herbs specified by patients for QOL and symptom improvement, compatible clinical indications have been traced to traditional Greco-Arab, Islamic, or Jewish medicine texts or ethno-botanical surveys conducted in the Middle East. Evidence for basic science and/or clinical research was found regarding 19 of the herbs. Safety issues were reported in the medical literature regarding 16 of the herbs and included potential interactions with chemotherapy in regard to five of the herbs (black cumin, turmeric, stinging nettle, fenugreek, and cinnamon).

Discussion

This study reports the prevalence and patterns of CM use by Arab patients with cancer in Israel. It also describes the expectations of these patients regarding integration of CM consultation services within conventional cancer care. Acknowledging the limited research carried out in Israel so far with cancer patients of the Arab community, we constructed a multisite design of three oncology settings in the community as well as in hospital. The prevalence of CM use as detected in the present study (about 40%) is less than that reported in Arab and Muslim countries (e.g. Saudi-Arabia, 90%) [11] as well as among Jewish patients with cancer in Israel (51%) [12]. This low prevalence could be due to strictly narrowing the question regarding CM use specifically to cancer-related outcomes rather than including the general use of CM for non-cancer-associated motives.

The extensive use of herbs reported in our study (87.9% of CM users, 34.8% of the cohort) corresponds well with the high prevalence of herbal use among cancer patients in Jordan (35.5%) [13], Turkey (32%) [14], and the Palestinian Authority (60.9%) [15]. In our study, we found that herbs are by far the leading CM modality, but that they also constitute the modality about which patients most often consult CM practitioners. Moreover, 64.5% of the participants expected to receive herbal medicine consultation if CM were to be integrated within the conventional cancer setting. This patients’ expectation of professional CM consultation on herbal use allegedly provided within the oncology department should not to be underestimated in a population where only 39.8% of herbal users consult a traditional or CM therapist. In supplementary Table S3, available at Annals of Oncology online, we present patients’ reasons for herbal use along with research data on potential benefits and risks of the herbs reported. We conclude that oncologists and other health care providers should be aware of two critical aspects when dealing with patients from populations that frequently use herbal and traditional medicine: awareness of the profound cultural association of patients with herbs, which, in turn, may determine their health belief model. Concomitantly, adopt a rigorous attitude concerning herbal safety and risks. As shown in supplementary Table S3, available at Annals of Oncology online, most of the herbs reported by patients are supported by long historical and traditional use. Of the 28 remedies patients used for cancer care, 22 are often used in Arabic cuisine and are virtually part of everyday nutrition. The potential benefit of 19 of the 28 specific herbal/traditional remedies reported in our study is currently supported by both basic and clinical research studies. Therefore, we recommend conducting more research using these herbs as a means of improving the QOL of cancer patients.

Research data on the potential of herbs to interact with chemotherapy and other cancer treatments has found its way into the oncology literature emphasizing their positive effect on anticancer drugs by synergistic mechanisms [16]. The present survey should provoke concerns about safety issues, as it became...
apparent that: (i) many herbs are self-prescribed (about 60% of herbal users); (ii) the use of unidentified herbal capsules might lead to interactions with chemotherapy as well as toxicity. Consequently, we call for a nonjudgmental yet critical approach when using herbs. Our conclusions concerning the Arab patients can be transferred to other communities with a strong affinity to traditional and herbal medicine, in both developed and developing countries. Interestingly, patients in our study were found to be highly supportive (83.1% of CM users and 78.7% of non-CM users) of the integration of CM services within the conventional oncology setting. Patients prioritized QOL as their main expectation of integrative CM consultant rather than expecting a miraculous cancer cure.

Our study has various limitations that include potential selection bias of patients who were reluctant to reveal their nonconventional practice in an interview carried out in oncology care setting. We limited language bias using questionnaires in Arabic and by conducting the research with Arab-speaking interviewers who were able to present questions in spoken everyday Arabic. The generalizability of our findings may be limited to the studied population, concerning geography (north Israel), participants’ age (adults only), cancer diagnosis (and also lack of onco-hematology), and heterogeneity of cancer therapies. Another limitation regarding generalizability concerns the definition of CM in our study which emphasizes therapies that are practiced in the Middle East. We suggest interpreting our results with caution acknowledging the social–cultural and health-related uniqueness of the Arab community in Israel which is positioned between the Middle Eastern Arab and the Western Mediterranean cultures. We hope that this limitation can also be viewed as a window of opportunity to acknowledge the need for integrative practice bridging traditional and modern societies across the globe.

This is the first study that explored Arab patient’s perspectives on CM integration in a conventional oncology setting. Indeed, the high prevalence of CM utilization, and the safety issues associated with such use, challenges patient–oncologist communication. Integrative physicians can facilitate a nonjudgmental and culturally sensitive discussion on CM use, and empower patients in their quest for informed decision tuned with their health belief model and evidence-based medicine.

conclusions

In this study, we found a high prevalence of CM, specifically herbal use among Arab patients with cancer in Israel, especially during active treatment phases with chemo- and radiotherapy. Both CM and non-CM users highly support the integration of CM consultation services within the oncology department as part of supportive and QOL-oriented care. We suggest that there is a need to integrate a CM consultant, preferably a medical doctor with dual CM and conventional training, within the oncology department team.

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disclosure

The authors have declared no conflicts of interest.

references