

An International Pilot Study of Oncology Physicians' Opinions and Practices on Complementary and Alternative Medicine (CAM)

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Background. In China and Taiwan, Complementary and Alternative Medicine (CAM) therapies such as traditional Chinese medicine have been an option to cancer patients for centuries, whereas in the United States, CAM has been growing in popularity only in the past few decades. Prior research has indicated that the prevalence of CAM use among cancer patients may exceed 80%. Because of a long cultural history of CAM, we hypothesized that oncologists in China and Taiwan (C/T) would communicate and combine CAM with conventional treatments more often than US oncologists. **Methods.** In 2004-2005, a convenience sample of oncologists from the United States, mainland China, and Taiwan were surveyed regarding their opinions and self-reported practice patterns regarding CAM. **Results.** A total 95 oncologists returned surveys, providing a 38% response rate. Four out of 5 respondents (78%) felt their medical training was inadequate to use CAM. However, 70% reported they would allow CAM use during active cancer treatment, even in the setting of curable disease. Responding C/T oncologists tended to ask patients more frequently (they

ask > 25% of patients) about CAM use and recommended CAM more commonly (recommend to > 10%) to patients than surveyed US oncologists, 55% versus 37% ($P = .09$) and 81% versus 53% ($P < .05$). Respondents from the United States felt no more prepared for CAM use than C/T respondents, but 70% reported willingness to combine CAM with conventional treatments for curable disease as compared with only 48% ($P < .05$) of C/T oncologists. **Conclusions.** As expected, responding C/T oncologists communicate more often about CAM with patients by asking and recommending CAM. However, contrary to our original hypothesis, C/T oncologists reported a much lower rate of combining CAM with conventional treatment among curable patients than responding US oncologists. Further research is needed to explore, in depth, the reasons for differences in CAM practice patterns among oncologists.

Keywords: oncologists; complementary and alternative medicine; opinions; practice patterns

Background

As the public interest into the use of nonconventional modalities has grown, physicians—whether voluntarily or not—have had to address complementary and alternative medicine (CAM) use among their patients within their daily practice. Although research into patients' perceptions and use of CAM has been increasing over the past decade, much less specific research exists regarding

physicians' opinions and practice patterns toward CAM. Evidence suggests that oncologists use CAM less than other specialties,¹ but paradoxically, cancer patients may have a higher rate of CAM use than the general public.

The use of CAM by the general population in the United States has grown from 34% in 1990 to 42% by 1997,² and that rate has increased to over 62% by 2002.³ With regard to cancer patients, a systematic review of the literature performed by Ernst and Cassileth in 1998, which included studies from 13 countries, found a mean CAM use of 31% among cancer patients (range of 7%-64%).⁴ In 2000, a study completed at MD Anderson Cancer Center indicated that the use of CAM among their patient population was 88%. Even after excluding spiritual practices and psychotherapy, approximately 69% of the surveyed population still described using CAM.⁵ In one study from Taiwan, cancer patients revealed a 64%

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rate of Chinese medication use specifically, and nearly 45% of cancer patients in Japan used CAM.^{6,7} A recent study among Canadian breast cancer patients found the use of CAM products/therapies or CAM practitioners had increased from 67% to 82% in the short time period between 1998 and 2005.⁸ These studies and others clearly highlight the frequent use of CAM among cancer patients, both in North America and internationally.

Clinical awareness regarding the prevalence of CAM use among cancer patients is important for many reasons, including the fact that many CAM therapies have been shown to be beneficial. For example, arsenic trioxide is now commonly used for the treatment of promyelocytic leukemia and was derived from a traditional Chinese medicine remedy.⁹⁻¹¹ Randomized clinical trials using acupuncture have found promising results for the relief of nausea and certain types of pain conditions.^{12,13} Hypnosis, massage, imagery, and many other CAM therapies also have promising results for pain and other quality of life aspects.

An equally important consequence of CAM therapies, especially many biologically based therapies or alternative medical systems, is the potential to interfere with chemotherapy efficacy and/or increase the risk for treatment-related toxicity and other complications. A variety of herbs such as St John's Wort, *Ginkgo biloba* and *Panax ginseng* have been shown to have potentially adverse interactions with chemotherapeutic agents.^{14,15} Furthermore, commonly used medications among cancer patients such as warfarin, cyclosporin, and anxiolytics may also interact with biologically based CAM therapies. One study of adult cancer patients who had recently been treated estimated that 28% were at risk for adverse herbal interactions. Notably, 46% of these patients were being treated with curative intent.¹⁶ Aside from these interactions, concerns exist about specific side effects of CAM products, given that the quality of herbs is mostly unregulated and untested. For example, some traditional Chinese medicine formulas contain heavy metals.^{17,18} In fact, the prostate cancer remedy PC-SPES has been taken off the market due to the presence of prescription drugs in the herbal formula, and Kava kava has been linked to serious hepatotoxicity and even death.¹⁹ One report indicates that those cancer patients with a good performance status who use CAM may in fact have worse outcomes.²⁰

Because CAM therapy is highly prevalent and poses substantial risks to some patients, some physicians have suggested that medical professionals have significant clinical and ethical obligations to educate themselves about commonly used CAM therapies and inquire about their patients' use of such therapies.²¹ For these reasons, more research regarding cancer physicians' perspectives and practice patterns toward CAM is needed. In countries such as China and Taiwan (C/T) where parallel medical systems (traditional Chinese medicine and Western

medicine)²² are in use, perhaps we could learn from their long experience with CAM. We hypothesized that oncologists in C/T would communicate and combine CAM with conventional treatments more often than US oncologists. We conducted a study seeking to describe the perspectives of oncologists from C/T and the United States regarding CAM as it relates to the following areas: frequency of recommendations, level of integration, concerns regarding CAM, learning preferences about CAM, and attitudes toward the different categories of CAM as defined by the National Center for Complementary and Alternative Medicine (NCCAM).²³

Methods

Subjects

Hematology/oncology physicians who had significant experience in clinical encounters with cancer patients from a convenience sample were approached for study participation. Physicians in training were also included. In the spring of 2004, this survey was distributed in a welcome packet to oncologists attending the Northern California Tumor Board meeting. Participants were instructed to return the completed survey to a designated return box. Then in the spring of 2005, a Chinese version was distributed to several institutions in Asia including: China Medical University, Taichung, Taiwan; Sun-Yat Sen Cancer Center, Taipei, Taiwan; Peking University Cancer Hospital, Beijing, China; and Peking Union Hospital, Beijing, China. These centers were selected based on the prominence of these regional cancer centers and from established contacts indicating willingness to participate in this study. Surveys were distributed and collected by an administrator, and ultimately collected by one of the authors (RTL). Finally, in the fall of 2005, this survey was given to clinical fellows and faculty in the Section of Hematology/Oncology at the University of Chicago by interdepartmental mail.

Survey Instrument

The survey instrument distributed to subjects was developed by 2 of the investigators (RTL and RSS). It was later refined with the aid of 2 oncologists. It consisted of 6 demographic questions and 26 quantitative survey questions. The questionnaire was distributed by several methods: included in a welcome folder as part of a cancer conference; distributed by hand to oncologists; or placed in oncologists' mailboxes at their place of work. A cover letter explaining the purpose of the survey and soliciting responses was included with all surveys. Definitions for the different categories of complementary and alternative medicines as defined by the NCCAM were attached to the survey. Demographic questions included queries

regarding the physician's gender, age, ethnicity, practice affiliation (university, private, or community), years since completion of formal training, and medical training. Survey items asked subjects to describe the proportion of their patients they believed were using CAM, how often they asked patients about CAM, and how often CAM was recommended. These types of questions used a set response range (0, 1%-10%, 11%-25%, 26%-50%, 51%-75%, 76%-100%). Additional questions asked subjects: which circumstances they would allow CAM integration with Western medicine; concerns about CAM such as safety, cost, reasons for use, interference with other medicines, and personal knowledge about CAM; past medical training in CAM; and if they would increase their use of CAM if studies showed they were efficacious. A modified Likert scale was used for response categories (strongly agree, agree, disagree, and strongly disagree) for these questions. Inquiries about CAM modalities provided all 5 categories of CAM as defined by the NCCAM.

In addition, the survey instrument was translated into Chinese for the oncologists from China and Taiwan, including 2 different written characters: China-simplified Chinese characters and Taiwan-traditional Chinese characters. These translations were aided by physicians in Taiwan and China. The survey questions were slightly altered for China/Taiwan to further clarify the specific roles of traditional Chinese medicine as recommended by physicians in China and Taiwan.

Statistical Methods

All data were coded and entered into a database using standard statistical software (STATA, release 9.0, College Station, Tex, 2005). Missing responses, responses that did not fit into one of the specific item responses, and items in which subjects provided more than 1 response to a survey item (when not specifically asked) were considered missing and omitted from any analyses. Primary statistical analyses were done in a descriptive manner with mean, median values, and percentages calculated. To test for an association between demographic variables and ordinal responses, chi-square analyses were completed. Because of the response rate, the modified Likert scale was simplified to agree and disagree, and the percent response categories were dichotomized according to median response value.

Results

A total of 95 subjects completed the survey (response rate of 38%) within 3 geographic regions: California, 30 of 147; China/Taiwan, 31 of 35; and Illinois, 34 of 67. Respondent characteristics are summarized in Table 1. Less than half of responding oncologists (43%) said they ask about CAM use in more than a quarter of their

Table 1. Baseline Characteristics of Survey Respondents

Demographics	Number	Percentage
Age		
21-30	4	4
31-40	51	54
41-50	22	23
51-60	11	12
> 60	6	6
Gender		
Male	62	70
Female	27	30
Practice type		
University	62	67
Community/private	30	33
Ethnicity		
Caucasian	50	53
Asian	33	35
Indian	7	8
African American	2	2
Other	2	2

patients, and less than half estimated CAM use among their patients as being greater than 25%. Only a minority of responding physicians (24%) recommended CAM to more than 10% of their patients. A significant number of these physicians (63%) would participate in the care of a patient wishing to combine CAM and conventional treatments of curable disease. This finding increased to 95% percent with incurable cancer. When asked which CAM therapies created the most concern for side effects, biological supplements were cited by 75% of respondents, and 18% felt that biological supplements should never be combined with conventional treatments. When asked if a patient combines conventional chemotherapy with CAM therapies, over 90% of responding oncologists agreed on being concerned about interactions between chemotherapy and CAM therapies, the safety of the patient, and a lack of scientific knowledge about CAM treatments. Among responding physicians who reported using CAM for patients, improving quality of life and relief of symptoms were reported as reasons by over half of these oncologists.

Only 1 of 5 responding oncologists (22%) described feeling prepared from their medical training to use CAM, and approximately one third (31%) expressed interest in using more CAM. Further education regarding CAM among the respondents was described as having occurred by a variety of methods, and the most frequent sources cited were journals, the Internet, and patients. Overall, 69% of physicians surveyed were not interested in using more CAM. However, when asked if they would increase CAM use if a randomized controlled trial of a CAM modality showed improvement in patients' quality of life, 95% of respondents agreed they would increase their use of that CAM modality. Of the responding oncologists, only 18% of physicians described using CAM personally. These data are shown in Table 2.

Table 2. General Responses of Surveyed Oncologists

Question	Number	Percentage
Ask about CAM use with > 25% of patients	40/94	43
Estimate prevalence of CAM use among patients as > 25%	42/90	48
Recommend CAM to > 10% of patients	22/92	24
Would allow CAM use during treatment of curable disease	59/94	63
Would allow CAM use during treatment of incurable disease	87/92	95
Prepared for CAM integration during medical training	21/94	22
Interested in using more CAM	28/91	31
Want to learn more about CAM	68/95	72
Use CAM personally	17/93	18

NOTE: CAM = Complementary and Alternative Medicine.

Physician Location

Surveyed oncologists in the United States and in C/T had similar estimations of the prevalence of CAM use among their patients and described similar levels of preparedness toward CAM use. Although not statistically significant, C/T oncologists tended to ask more frequently about CAM use among patients, and a larger difference was evident with the number of oncologists recommending CAM to more than 10% of patients, which was statistically significant. With regard to participating in the care of a patient wishing to combine CAM and conventional treatments, responding US physicians were more willing to do so than their counterparts, 70% versus 48% ($P < .05$). Oncologists in the United States were less concerned about why patients chose CAM, and were less interested in learning more about CAM. These data are summarized in Table 3.

Gender, Age, Practice Affiliation, Preparedness, and CAM Use

Responding female oncologists were more interested than their male counterparts in CAM use when a patient expressed a desire to combine treatment modalities, 92%

versus 67%, ($P < .05$). Those oncologists who were younger (less than 40 years old) and those who practiced in a university setting were more likely to report feeling better prepared to address issues of CAM than older oncologists practicing in the community, 31% versus 8% ($P < .01$) and 31% versus 7% ($P < .01$), respectively. As would be expected, individuals reporting greater preparedness for CAM also reported: more frequently asking their patients about CAM, recommending CAM to patients, participating in the care of patients wishing to combine CAM and conventional treatments, expressing interest in using more CAM, and having concerns for why a patient chose CAM.

Discussion

This is one of the first studies to attempt to compare the opinions and practice patterns of CAM among oncologists in the United States, China, and Taiwan. Many of the general research findings are consistent with other studies regarding physicians' reports about CAM. With regard to patients with curable disease, nearly two thirds of surveyed oncologists were willing to participate in the care of patients wishing to combine CAM and conventional treatments. These high rates of CAM-conventional therapy integration have been found in other studies, as well. A recent study of physicians at a cancer hospital in China found 63% of surveyed physicians found it acceptable to use herbs on patients undergoing conventional treatment.²⁴ In Japan, over 90% of physicians surveyed would allow integration of CAM.²⁵ However, when examined separately by location, C/T physicians in this study were significantly less likely to report willingness to participate in the care of patients combining CAM and conventional treatments, which was contrary to our hypothesis.

We originally hypothesized an increased exposure to CAM, such as traditional Chinese medicine, would create a culture of greater acceptance and integration among physicians. Although a higher percentage of C/T oncologists recommend CAM and ask about CAM use, the circumstance of curable cancer highlighted a limit by C/T physicians in

Table 3. Analysis of Location

Question	China/Taiwan Surveyed Oncologists (%)	US Surveyed Oncologists (%)	P Value
Estimate prevalence of CAM use among patients as > 25%	55	42	.26
Prepared for CAM integration during training	26	21	.57
Ask about CAM use with > 25% of patients	55	37	.09
Recommend CAM to > 10% of patients	39	15	.01
Would participate in the care of a patient wishing to combine CAM and conventional treatment for curable disease.	48	70	.04
Concern about why patients chose CAM	84	47	.001
Wanting to learn more about CAM	85	62	.03

NOTE: CAM = Complementary and Alternative Medicine.

combining treatments. One possible explanation would be a difference in medical training with CAM. Our study found that nearly 4 out of 5 responding oncologists reported being unprepared to use CAM and this finding is consistent with other studies. For example, in Italy, 87% of surveyed oncologists stated that their knowledge base about CAM was limited or nonexistent.²⁶ A survey in Japan also found that 80% of oncologists were unable to either encourage or discourage patients about CAM use when asked.²⁵ However, as both C/T and US oncologists in this study had similar levels of preparedness, this result would not be sufficient to explain such practice difference. Instead, maybe a greater exposure to CAM, and thus greater experience to potential hazards, has led to a realization that CAM–conventional combination therapy could potentially lead to harm for patients, including significant interactions and possibly decreased efficacy of treatments that otherwise have a curative potential. Possible indications of greater awareness of CAM is represented by a greater frequency of inquiry about CAM, greater interest in learning more about CAM, and greater concern by surveyed C/T oncologists as compared with US oncologists about why patients choose CAM. Definitive correlations between awareness of CAM issues and practice patterns are beyond the scope of this study.

One overall promising aspect of our study was that 72% of surveyed oncologists expressed interest in learning more about some aspect of CAM. This finding is also similar to that of a survey among general physicians in Colorado that showed 84% of them wanted to learn more about CAM.²⁷ Thus, one area of needed improvement would be to increase practicing oncologists' familiarity with CAM. Another important area of needed development would be to increase effective physician–patient communication about CAM. The majority of oncologists in this study fail to inquire about CAM use among their patients, and physicians simply lack awareness of patients' use of CAM. Among the general population, nondisclosure of CAM use has been estimated between 23% and 72%,²⁸ whereas among cancer patients estimates of nondisclosure of 10% to 41% have been described.²⁹ One key reason for nondisclosure of CAM use in at least 1 study would appear to be a “don't ask, don't tell” attitude by physicians. Richardson et al found that 48% of patients reported that “physicians never ask about CAM,”³⁰ and at least 2 other studies suggest that physicians similarly do not raise the issue.^{28,31,32} This finding is also supported by our study in that only 27% of responding oncologists said they ask more than half of their patients about CAM use. In response to this high nondisclosure rate, the NCCAM has started a “Time to Talk” initiative to encourage communication between patients and physicians about CAM use.³³ Furthermore, this lack of communication may partially explain the considerable underestimation by surveyed oncologists about the prevalence of CAM use by patients. Only 48% of surveyed oncologists estimated the

prevalence of CAM use among patients above 25%, which the literature indicates often exceeds 50% and even 80% among certain cancer populations.^{5-8,34}

This survey study has several limitations, including a limited response rate. This limited response rate limits the ability to generalize the data relative to all oncologists and specifically the ability to do multivariate analysis to control for key factors such as age, location, gender, and type of practice. Equally limiting is the fact that the survey included a convenience sample of physician subjects and includes a heavy bias toward young, Caucasian males with a university affiliation. The response rate was highly variable among the different populations. Senior administrators in China/Taiwan assisted with the distribution of the survey, which may help explain a significantly higher response rate in these cancer centers as opposed to the methods used in the United States. As a survey study seeking subject self-reports, these data may not accurately represent physicians' actual practice patterns.

Despite these limitations, our research indicates a general willingness of oncologists to combine CAM and conventional treatments despite oncologists recognizing their own knowledge deficit about CAM. As expected, responding C/T oncologists recommend CAM more often to patients and tend to inquire about CAM more frequently. Surprisingly, surveyed US oncologists, not C/T oncologists, were more willing to care for patients wishing to combine CAM and conventional treatments. Whether oncologists should adopt similar practice patterns to those of C/T oncologists is an interesting concept and will be specific to the CAM modality in question such as biologically based therapies. Given the limitations of our study, further research should also consider the use of more in-depth qualitative survey and interview methods to understand these differences in practice patterns. As well, future research should study larger populations of cancer physicians at both national and international levels to provide more generalizable results regarding issues of communication and use of CAM for cancer patients. Such information could highlight practice patterns that could help cancer patients receive better care while avoiding any potential pitfalls when integrating complementary and alternative medicine with conventional cancer treatment.

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