Opening the Dialogue: Herbal Supplementation and Chemotherapy

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The National Institutes of Health’s (NIH’s) National Center for Complementary and Alternative Medicine (NCCAM) defined complementary and alternative medicine (CAM) as “practices that are not presently considered an integral part of conventional medicine and has categorized them into five major domains as follows: biologically based treatments, mind-body interventions, manipulative and body-based methods, alternative medical systems, and energy therapies” (Richardson, 2001, p. S3037).

One biologically based treatment that has been on the rise in popularity is herbal remedies. In 2004, herb sales were estimated at $257 million (Blumenthal, 2005). Use of herbal supplements among patients with cancer is particularly high. Recent estimates suggest that many patients with pediatric cancer (84%), breast cancer (50%), or prostate cancer (37%) use some form of CAM (Richardson, 2001). Other sources state that the use of CAM in patients with cancer is 54%–77%, and those with breast cancer use more CAMs than people with other cancers (Sparreboom, Cox, Acharya, & Figg, 2004). For the purposes of this article, the definition of herbal supplements will include herbal preparations and vitamin and mineral supplements.

A major concern regarding the use of herbal supplementation is that the supplements are not required to undergo any federally regulated safety testing (American Cancer Society [ACS], 2001). Formulations for herbal supplements may contain 4–12 different ingredients and are available in many different formats, including teas, powders, pills, tinctures, and syrups (ACS, 2003). The supplements are not tested for purity or consistency, so each sample may contain a different formulation or dosage. In addition, the U.S. Food and Drug Administration (FDA) passed legislation in 1994 allowing herbal supplements to be sold over the counter (Cassileth, 2000), as well as absolving doctors and pharmacists from having to report any potential side effects the supplements may cause (ACS, 2001).

Because of the lack of product standardization and drug interaction effects, some patients are experiencing negative side effects. ACS (2003) reported that herbal medicine has become the leading cause of hepatotoxicity. Liver damage related to herbal medicine may be from the lack of quality control of herbal supplements or from the use of supplements with prescribed medications, resulting in adverse drug interactions.

Patients continue to turn, in increasing numbers, to herbal supplements for relief from side effects they may experience as a result of their cancer treatment. Many patients do not tell their oncologists or nurses if they are using any supplements. As many as 72% of patients surveyed had not informed their physicians of their use of herbal supplements (Powell, Dibble, Dall’Era, & Cohen, 2002; Sparreboom et al., 2004).

The purpose of this article is to increase healthcare providers’ awareness about the use of herbal supplements by patients receiving cancer chemotherapy and to provide guidelines for accurate assessment of this phenomenon. Use of these or similar guidelines will enhance communication between patients and nurses and help to educate patients about reliable resources for information and guidance regarding their use of herbal supplements.

Complementary and Alternative Medicine Information for Professionals

For physicians and nurses, the silence of patients with cancer regarding their use of herbal supplements presents a difficult
challenge. Because herbal supplements may interfere biologically with patients’ cancer treatments, practitioners need to be current on potential side effects of herbal supplements, interaction potentials, and patients’ use of them.

Currently, 30 states license practitioners of oriental (herbal) medicine and more than 25 colleges of oriental medicine exist in the United States (ACS, 2003). CAM courses were offered as electives in approximately 53% of medical school curricula in the United States in 1997 and subsequently have become more common (Cassileth, 2000).

For nurses, professional education on CAM therapies is more limited. Some CAM education is available in 49% of nursing schools (Dutta et al., 2003), but as of 1997, only 37% of nurse practitioner programs offered formal education on CAM therapies. According to Gaydos (2001), the inclusion of CAM curricula in nursing programs is growing in frequency; however, with limited availability of CAM education during formal education, nurses often rely on personal experience. One study reported that more than 60% of nurse practitioners use personal experience to make recommendations (Sohn & Loveland Cook, 2002). Additional sources of information used by nurses include continuing education and certification courses (Gaydos) and peer-reviewed journals such as the Clinical Journal of Oncology Nursing and Oncology Nursing Forum.

Complementary and Alternative Medicine Information for Patients

Nurses often do not ask their patients about the use of herbal supplements (Spaulding-Albright, 1997), but patients have expressed a desire to discuss the use of these therapies (Cope, 2001). In a study of complementary medicine use by adult patients participating in cancer clinical trials, providers often missed the fact that their patients are using CAM therapies (Sparber et al., 2000). Nurses, particularly advanced practice nurses, should incorporate questions about the use of herbal supplementation when assessing and interviewing patients. Examples of direct questions include, “In addition to your prescription medications, are you taking any vitamins or herbal supplements?” and “Are you taking any over-the-counter supplements on a regular basis?” Encouraging patients to talk about their use of—or desire to use—herbal supplements will help them feel comfortable, open the lines of communication, and foster trust (Whitman, 2001). This feeling of trust will enable patients to comfortably discuss herbal supplementation by asking any questions they might have. Direct inquiry is the antecedent in a three-step process to address the issue of herbal supplementation (Cawthorne, Gnesdiloff, & Boyle, 1999).

After ascertaining that patients are using herbal supplements, the first step—providing education—can be initiated readily (Cawthorne, Gnesdiloff, & Boyle, 1999). Healthcare providers should share with patients any available information regarding supplements patients have chosen to use, noting the source from which data were gathered. Healthcare providers then should discuss with patients possible side effects and/or interactions with other prescription medications being taken.

The second step focuses on facilitating patient learning by directing patients to scientifically sound resources of information (Cawthorne et al., 1999). Internet resources, if accessible to patients, can relay a great deal of information that often is updated regularly. Patients must be instructed about assessing which sites are credible. Criteria for reliable and credible Web sites include sponsorship by a respected organization such as a government agency or professional organization, use of peer-reviewed materials as resources, regular updates (Fogel, 2002), and a reading level consistent with patient literacy recommendations (Brooks, 2001). Two examples of reliable Web sites are NCCAM (www.nccam.org) and ACS (www.cancer.org). Pharmacists certified by the American College of Clinical Pharmacology (2000) and dietitians with expertise in herbal supplementation also are helpful.

Finally, help patients to sort through any information that has been gathered and answer their questions (Cawthorne et al., 1999). When critiquing information gathered by patients, author credibility should be taken into consideration. The Oncology Nursing Society’s (2002) position regarding CAM therapies recommended that only credible resources and evidence-based recommendations be used.

Ultimately, patient education will be more successful if patients’ motives for taking supplements are understood and adequately addressed. Some patients choose to take supplements because they have been encouraged by their family members or friends to take them (Whitman, 2001). Others choose supplements for the possibility of boosting the immune system, relieving disease symptoms, and gaining strength or energy (Powell et al., 2002). And still others use herbal supplements because their use increases their sense of control over their choices of treatment (Fryback & Reinert, 1997).

Making Recommendations

The mechanism of action for most herbs is currently unknown (Skidmore-Roth, 2004). Compilations such as The Complete German Commission E Monographs provide literature reviews of more than 300 herbs and recommendations for their use. Unfortunately, the guidelines used to prepare these monographs do not translate into the strict guidelines imposed by the FDA (Blumenthal, 1998). Limited research involving the testing of herbal supplements and the concomitant administration of chemotherapeutic agents has been published. A search of the Cumulative Index to Nursing and Allied Health Literature® (CINAHL®) and PubMed, using keywords “herbs,” “cancer,” “chemotherapy,” and “research,” returned 25 citations on CINAHL and 22 on PubMed.

Few articles discussed quantitative findings. Of those that did, the studies (a) were performed on mice (Hau, Chen, Cheng, & You, 1993; Thomson, Dzubak, & Hajduch, 2002; Zee-Cheng, 1992), (b) did not specifically name the herbal supplement used (Chan, Chang, Molassiotis, Lee, & Lee, 2003; Sharma & Alexander, 1996), or (c) did not involve the combination of herbal supplements and chemotherapy agents (Wilkinson & Chodak, 2003; Wills, Bone, & Morgan, 2000). Other articles discussed the use of CAM therapies by patients with cancer—specifically herbal supplements (McCune et al., 2004; Powell et al., 2002; Richardson, Sanders, Palmer, Greisinger, & Singletary, 2000) and approaches to counseling patients about the proper use of these supplements (Cawthorne et al., 1999; Michaud, 2000; Shapiro, Reddan, Winters, & Hamilton, 2001).

In an effort to address the multiple issues involved in CAM therapies, NIH established NCCAM in 1998 (Cassileth, 2000). Creation of this center enabled the subsequent initiation of NIH-supported research projects about CAM. By 2001, NCCAM supported research on the effects of CAM therapies on cancer at two institutes: Johns Hopkins University in Baltimore, MD, and the University of Pennsylvania in Philadelphia, PA. Researchers at Johns Hopkins studied herbal mixtures and their potential antioxidant properties, whereas those at the University of Pennsylvania tested the effect of increased oxygen on head and neck cancers as well as on tumor growth and metastasis (Richardson, 2001). Today, NCCAM has awarded grants for more than 315 CAM research projects at centers around...
the country and in Canada (NCCAM, 2004). Still, research involving human participants and the interaction of herbal supplements and chemotherapy is limited. However, the use of translational research (reviewing medical charts of patients identified as benefiting from a particular CAM treatment to determine actual benefit) by NCCAM is helping to bolster the argument for and actual numbers of clinical trials involving herbal supplements (Lee, 2004).

**Conclusion**

Interactions between herbal supplements and chemotherapy agents can leave patients at risk for severe adverse conditions such as hepatotoxicity. A four-step process—direct inquiry, education, facilitation of information gathering, and sorting through collected information—can be employed by an advanced practice nurse or other healthcare provider to assess the use of herbal supplements by patients with cancer.

Understanding patients’ motives for using herbal supplements will facilitate the education process. Patients’ reasons for taking herbal supplements should be accepted, but nurses should ensure that patients are informed about existing data. Being aware of all of the supplements and medications that patients are taking will enable nurses and physicians to consider possible herb-drug interactions that patients may experience and, ultimately, provide optimal care for patients.

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**References**


Rapid Recap

Opening the Dialogue: Herbal Supplementation and Chemotherapy

- Herbal supplements are a popular complementary medicine. Sales of herbal supplements in 2004 were estimated at $257 million.
- Herbal supplements are not required to undergo any federally regulated safety testing, and doctors and pharmacists are not obligated to inform patients of potential side effects.
- Patients with cancer are using herbal supplements as a complement to their treatment regimens, yet few inform their treating physicians of their use of such supplements.
- Inclusion of complementary and alternative medicine-related courses in medical and nursing school curricula is becoming more common because of the need for healthcare providers to be current on such medical modalities.
- Nurses’ direct inquiries can open lines of communication with patients who wish to discuss herbal supplementation.
- Only credible resources and evidence-based recommendations should be used when advising patients about herbal supplementation.
- Although few articles have been published discussing quantitative data regarding the concomitant use of herbal supplements and chemotherapy, clinical trials are being conducted in increasing numbers.