

ADVANCES IN INTEGRATIVE ONCOLOGY

Perspectives on Complementary Approaches in Cancer Care

An Overview of Integrative Oncology

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H&O What is integrative oncology?

DA Integrative oncology is the rational, evidence-based combination of conventional therapies used today to treat patients with cancer and complementary modalities that may be beneficial, in particular for management of symptoms related to the cancer itself or its treatment. The term “integrative medicine” is preferable to “complementary and alternative medicine” because it better describes the intent. “Alternative” implies an intervention used instead of conventional therapy. The use of alternative therapies in oncology is not being advocated by practitioners of integrative oncology. Tremendous strides have been made in the treatment of cancer with conventional therapies and their use should be continued.

Patients who come to the Osher Center for Integrative Medicine at UCSF who are interested in being treated with an alternative approach that omits chemotherapy, radiation therapy, hormonal therapy, or targeted therapy are discouraged from this pursuit. Rather, integrative oncology seeks to incorporate the best of both worlds. Complementary treatments that may not yet be as accepted as conventional interventions are recommended for integration into a patient’s overall cancer treatment regimen.

H&O What modalities are part of an integrative approach to cancer treatment?

DA The modalities that are available are wide-ranging. For patients seeking an integrative oncology consultation at the Osher Center, my first step is the evaluation of their diet. Whereas the role of smoking in cancer development is acknowledged, it is less appreciated that 30–40% of cancers are related to nutrition. The American Cancer Society recently issued updated nutrition and exercise guidelines for patients living with or beyond cancer. Thus, the first step in my integrative approach is to evaluate thoroughly what patients are eating.

H&O What recommendations do you make to patients in your clinic?

DA I encourage patients to maintain good nutrition, following the dietary recommendations of the American Cancer Society and the American Institute for Cancer Research. The diet should be plant-based, rich in fruits, vegetables, and whole grains. Cruciferous vegetables—cauliflower, broccoli, Brussels sprouts, and kale—contain indole-3 carbinol, a compound that is currently being investigated for potential antitumor agent.

Patients are recommended to eliminate or decrease consumption of animal fats as much as possible, in particular dairy products and red meat. Evidence suggests that beef consumption may be associated with distal colon cancer and may also fuel metastatic disease. For adults of most ethnicities, the proteins and sugars present in dairy products are basically foreign allergens that can lead to chronic inflammation. Instead of promoting inflammation, the diet should include good anti-inflammatory components, including omega-3 fatty acids present in coldwater fish (eg, salmon, mackerel, herring, and sardines).

Several preclinical studies were presented at the 2006 annual meeting of the American Society of Clinical Oncology on the benefits of turmeric, a spice widely used in Indian foods. It has been noted for some time that people living on the Indian subcontinent have lower rates of many diseases, including Alzheimer disease and some malignancies. Studies in mouse models of colon cancer found that diets rich in turmeric were

associated with a lower rate of tumor development and prolonged survival compared to the control group.

H&O Is consumption of green tea recommended?

DA Yes, I encourage patients to drink green tea as part of their daily nutritional regimen. I personally drink three cups every morning! Epigallocatechin gallate (EGCG) is a polyphenol with potent antioxidant activity that has demonstrated activity in *in vitro* and animal models of chemoprevention.

H&O Have the benefits of these nutritional measures been confirmed in clinical studies?

DA Interestingly, a Japanese study reported recently in *JAMA* found that green tea prolonged survival by decreasing cardiovascular events, particularly stroke, but did not seem to have any impact on cancer. However, the study points to one of the challenges regarding our understanding of the connection between nutrition and cancer: these are very difficult studies to conduct. *In vitro* and animal model studies provide only limited insights into possible activity in humans, and it is quite difficult to conduct, say, a placebo-controlled trial of green tea in the population sample size that would be required to confirm an associated decrease in the development of malignancies.

Our understanding about nutrition relies more heavily on epidemiologic evidence. It may be that no beneficial association was seen between green tea and cancer because those who drank green tea lived longer and thus accumulated more malignant diagnoses. We need to evaluate the literature on nutrition and cancer very carefully.

H&O How is the use of supplements addressed in your integrative approach?

DA We always review whether any supplements a patient is currently taking are appropriate and also whether there may be a potential interaction with other treatments, by way of the hepatic cytochrome P450 enzyme system which is responsible for the metabolism of many chemotherapeutic agents, as well as many botanicals. There is also the continuing controversy regarding antioxidant supplementation. Many patients increase their intake of antioxidants in order to protect against tissue damage. However, radiation therapy and many chemotherapeutic agents work by oxidative damage, and so there is some concern that though antioxidants may protect normal tissue from damage from these therapeutic modalities, they may also protect the tumor. More research is definitely needed to better understand these interactions and to

determine whether these fears are anything more than theoretical. Oncologists widely prescribe pharmaceutical antioxidant agents—mesna and amifostine—without concern and with the knowledge that neither interferes with tumor response to therapy.

H&O What is the role of exercise in integrative oncology?

DA Physical activity is a key component to the integrative approach. There are good data that an active lifestyle may reduce the risk of breast, colon, and prostate cancers as well as perhaps many others. There is also increasing evidence that in patients with a cancer diagnosis, 3–6 hours of exercise each week may be associated with prolonged survival, again with good data from analyses in patients with breast and colon cancer. Exercise is also useful in reducing fatigue and depression by way of release of endorphins. At the Osher Center we offer all of the patients seen in integrative oncology consultation an evaluation by a physical therapist who is also a personal trainer.

H&O What other modalities may be incorporated into integrative care?

DA Traditional Chinese Medicine (TCM) is a significant part of my integrative oncology recommendation. Acupuncture has been found to be of benefit to cancer patients, and patients I see at the Osher Center are always referred to a TCM practitioner. An NIH Consensus Statement recognized the benefit of acupuncture for the treatment of chemotherapy-induced nausea and vomiting. In my experience, patients receiving acupuncture while undergoing chemotherapy seem to have a much easier course of treatment; acupuncture appears to decrease fatigue and pain, and there is some suggestion that it may have a positive impact on immunity. Some TCM practitioners believe that acupuncture helps maintain the white blood cell count. This approach still needs to be carefully studied in cancer patients, but it appears to be a very useful modality.

TCM also includes the use of herbs, attention to diet, and other approaches such as moxibustion and qi gong. We carefully monitor any herbs that a patient may be prescribed by a Chinese medicine practitioner in order to protect against undesired interactions with prescribed medications.

H&O What techniques are typically suggested for reducing stress in cancer patients?

DA Patients with cancer are often very stressed, and this stress causes sympathetic nervous system overload,

leading to an overproduction of epinephrine and cortisol, both of which are damaging to the immune system. In integrative oncology, which looks at the whole person and not just at the cancer, we try to find ways to help patients decrease stress.

Consulting with an integrative oncologist is a good start to stress reduction for many patients. The consultation often enables the patient to regain some sense of the control that is often lost when cancer is diagnosed. Patients find out what they can do to assist themselves with and during the treatment of their cancer.

Massage is another useful way to reduce stress. This modality has been associated with some controversy in the past. For many years, there was a concern that massage could lead to the spreading of cancer. Patients with open lesions on their skin, of course, should probably not undergo massage. But massage does not appear to cause cancer to metastasize and again the benefits have been shown to outweigh any theoretical risk.

The broad field of mind-body interventions includes mindfulness-based stress reduction (MBSR), biofeedback, guided imagery, hypnosis, yoga, tai chi, art therapy, music therapy, and other relaxation therapies. Many of these are based on training the practitioner to focus on an awareness of the breath. Breathing is unique in that it does not require our attention to occur, but it can also be consciously regulated. Paying attention to the interface between conscious and unconscious breathing is an excellent way for patients to learn to harness the power of the mind to heal the body. Mind-body interventions work through decreasing the sympathetic overdrive and shifting to parasympathetic nervous system dominance, thus lowering epinephrine and cortisol levels.

MBSR is a meditation practice that encourages the practitioner to appreciate and be engaged in the present moment in a nonjudgmental way. It is generally taught over a 6-week course in a group setting, after which, trainees adopt a standing practice of mindfulness meditation. A number of studies in cancer patients have demonstrated consistent benefits including reduction of stress, improved coping and increased well-being in those who practice MBSR.

Another useful tool is guided imagery. I often recommend that patients obtain guided imagery CDs; these can be very useful for promoting relaxation and breath awareness, and also can help activate the parasympathetic nervous system. Listening to a CD may be more accessible and easier than meditation for some patients. For patients requiring even more assistance in this area, interactive guided imagery or hypnosis may be useful interventions. Patients who have been diagnosed with cancer and are still smoking cigarettes may be well served

by undergoing hypnosis to help them stop. Individuals who find it difficult to employ the power of their mind without seeing visual proof and immediate evidence that the body is responding often find biofeedback useful because physiologic changes in the body are graphically displayed.

H&O How is spirituality addressed in the integrative approach?

DA As part of obtaining a social and family history, I always ask patients if they were raised with specific religious beliefs and, if so, whether they are still practicing these traditions. If patients state that they are not currently religious, then I ask if they are spiritual. Spirituality has different meanings for different people; to my mind, one can be spiritual without being active in a specific organized religion. I understand spirituality as whatever it is that gives life meaning and the means within oneself for a connection to be felt with the larger universe. For people who are wondering “Why me?” with regard to their cancer diagnosis, seeking solace in spiritual beliefs or feelings can be very calming and can provide some hope, both of which, I believe, are ultimately beneficial for the immune system.

H&O What are some useful resources for clinicians who are interested in integrative oncology?

DA The Society of Integrative Oncology is a very useful resource. This Society was formed a few years ago and has organized three international conferences, with the fourth scheduled for November 2007 in San Francisco. These conferences have attracted 300–500 attendees. The meeting’s focus is on updating attendees on the latest advances in integrative oncology research. Oncologists, other integrative physicians, and practitioners of the various modalities discussed above are present at the SIO meetings allowing for productive networking. The Society’s *Journal of the Society of Integrative Oncology* is also a valuable resource.

Integrative Cancer Therapies is another useful journal for those interested in the integrative approach to cancer treatment. The Memorial Sloan-Kettering Cancer center has a useful Web site with information about herbs and botanicals (www.mskcc.org/mskcc/html/11570.cfm). The NCI also has a useful Web site (www.cancer.gov/cancertopics/treatment/cam). *Integrative Oncology*, a recently published textbook edited by Dr. Matthew Mumber, is an extremely comprehensive resource. Dr. Andrew Weil and I are editing another integrative oncology textbook that will be published by Oxford University Press, later in 2007.