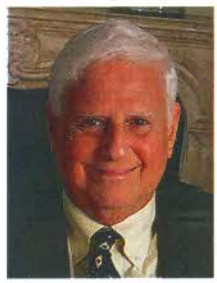
Integrating Nutrition and Selected Controversial Nutritional Supplements into a Cancer Treatment Program



Michael Schachter, MD

Dietary issues for cancer patients and selected controversial supplements for cancer patients are discussed. Specific topics covered include studies suggesting benefits of a nutrition program and benefits of a broad range supplement program for cancer patients, vitamin C, iodine, supplements developed by the late Mirko Beljanski PhD, CYP1B1 and Salvestrols.

Although many physicians would acknowledge that nutritional factors are important in preventing cancer, the vast majority of oncologists fail to discuss nutritional and lifestyle factors to help their patients already diagnosed with cancer. Oncologists attempt to rid the body of cancer cells with surgery, radiation, chemotherapy and most recently targeted medications, like Herceptin and Avastin. Little attention is paid to lifestyle factors, nutritional recommendations or nutritional supplements. Oncologists often give patients dietary advice that is exactly opposite to the advice contained in cancer-preventive diets. Patients are often told to eat high calorie, high fat, high protein, high refined carbohydrate diets with lots of sugar and other refined processed foods. They are sometimes told that it doesn't matter what you eat as long as you eat enough calories to sustain your weight during conventional treatment.

There is considerable direct and indirect evidence that some of the same recommendations designed to prevent cancer should also be applied to treating cancer. Such a program should improve both cancer patient survival statistics and quality of life issues including reducing side effects of conventional treatments. Dr. Charles Simone[1] and Patrick Quillin[2] in their books on nutrition and cancer show the benefits of excellent nutrition for patients undergoing conventional cancer treatment, indicating references to support their recommendations.

Common sense tells us that a patient's clinical outcome will be related to his nutritional intake. Food supplies the building blocks for all cellular structures in the body (cell membranes, DNA, proteins, etc...). It supplies substances that, when combined with oxygen in the body yields energy for all biochemical reactions. Finally, food supplies information to the genes of the body to help regulate all biological processes. This epigenetic information can help the genes to repair and heal the body or cause a deterioration of the healing process, depending upon what information from food is supplied.

One important area of concern for cancer patients and people in general has to do with exposure to toxins and how well the body is able to rid itself of these toxins. Toxins may be carcinogenic or toxic in other ways. We are what we eat, drink, breathe, touch, absorb and cannot eliminate. We have many systems in our body to help protect us from toxins and to eliminate them. We have the barrier function of our skin and our mucus membranes. We eliminate many toxins through bowel movements and it is therefore important for all us to move our bowels at least once daily. One of the main functions of the liver is to eliminate toxins. This is generally done in two steps. In the first step, known as phase 1, toxic organic molecules are oxidized to a more water-soluble form. During the 2nd step or phase 2, this oxidized molecule is conjugated to another organic molecule for easier elimination either through urine or feces via the bile. Some examples of these molecules that conjugate are: sulfates, glucuronic acid, glutathione and glycine. Many phytonutrients in fruits, vegetables and herbs are capable of influencing the detoxification pathways to help the body eliminate toxins. For example, sulforaphane derived from broccoli sprouts, upregulates phase 2 of liver detoxification and has many anti-cancer properties.[3,4]

The Macrobiotic Diet and Cancer

It is difficult to find controlled studies comparing a group of cancer patients receiving only conventional treatment with another group that receives conventional treatment along with a dietary program that includes many of the principles of nutrition that I discuss in this article. One such study recorded the survival time from diagnosis of pancreatic cancer patients who ingested a macrobiotic diet, which consists primarily of whole, plant based foods. In this first major scientific study of the macrobiotic approach to cancer, researchers at Tulane University reported that the median survival among patients with pancreatic cancer was significantly higher among those who modified their diet than among those who did not (17 months versus 6 months). The one-year survival rate was 54.2 percent in the macrobiotic patients versus 10.0 percent in the controls. All comparisons were statistically significant.[5]

Also reported by the same authors was a study in which prostate cancer patients with metastatic disease were prescribed a macrobiotic diet. This case control study demonstrated that those who ate macrobiotically lived longer (177 months compared to 91 months) and enjoyed an improved quality of life. The researchers concluded that the macrobiotic approach may be an effective adjunctive treatment to conventional treatment or in primary management of cancers with a nutritional association. "This exploratory analysis suggests that a strict macrobiotic diet is more likely to be effective in the long-term management of cancer than are diets that provide a variety of other foods."

General Recommendations

In spite of the limited number of published studies on this subject, many nutritionally oriented clinicians are convinced that an optimal nutritional program is essential for improving the results of cancer treatment. Such a program should be recommended for cancer patients and not reserved only for those trying to prevent it. Furthermore, a nutritional program should be used by patients who have undergone successful conventional treatment and who are searching for ways to help prevent a recurrence.

Here is a list of dietary recommendations that I give to my cancer patients. I suggest

they avoid: sugar and white flour products; alcohol, caffeine, fluoridated and chlorinated water, foods containing bromine, hydrogenated fats and all trans fatty acids, artificial chemicals added to foods [such as artificial sweeteners like aspartame and sucralose (Splenda), artificial colors and flavors, preservatives]; fish contaminated with mercury; and genetically modified food. Many people are sensitive to gluten (protein found in wheat, rye and barley) and those people should avoid these foods. Thomas Seyfried PhD, in his book *Cancer as a Metabolic Disease* emphasizes that cancer patients (especially brain cancer patients) should be on a relatively low carbohydrate diet and that good fats should be emphasized. In his studies with mice, he has found that a calorie restricted ketogenic diet increases the survival time of his mice with brain cancer. Food allergens should also be avoided.

Non-dietary items to be avoided include: tobacco, recreational drugs like opiates and cocaine, mercury amalgam dental fillings; exposures to toxic chemicals; synthetic hair dyes; aluminum containing antiperspirants; harmful electromagnetic frequencies (such as cell phones as much as possible, microwave ovens); exposure to nuclear plants; and tight fitting clothing such as wired bras, which cut off lymphatic circulation within the breasts. A more complete list of items to avoid can be found at my website: *www.schachtercenter.com* (click on literature and articles and look for Avoid list).

I suggest that my patients eat primarily whole foods, mostly plant-based, largely raw and preferably organic. However, for some patients, a diet that emphasizes high quality grass-fed animal products, preferably organic, along with high quality plant-based foods may be fine or even preferable to a diet restricted to only plant-based foods, especially if the patient is undergoing conventional treatment. I recommend that my patients shop in the outer isles of the super market where most whole foods are kept and that they avoid the inner isles, which largely have packaged processed foods. A wide variety of vegetables, fruits, nuts and seeds and legumes should be eaten and attempts should be made for the foods in the diet to be of many colors (a rainbow array), as this helps to ensure that a wide variety of phytonutrients are obtained in the diet. Fresh, raw, vegetable juices with a smaller amount of fruit are excellent. Animal foods should generally be unprocessed, without chemical additives. Meat should be from grass fed animals and organic when possible. Dairy should be certified raw if it is available. Eggs should be from free-range chickens and organic when possible. For most people, I do not recommend total elimination of animal products. Food should not be overcooked or burned. Low glycemic index foods should be eaten, as it is clear that higher levels of blood sugar drive cancer cell growth.

Additional suggestions I give to my patients include: (1) Eat slowly and chew your food well to improve digestion and prevent gastric upset; (2) Don't skip breakfast because studies have shown that people who eat breakfast generally have a lower intake of total calories for the day and have a better insulin sensitivity; (3) Meals should not be skipped as doing so causes an increase in insulin resistance; (4) Cooking method matters, as harsh cooking methods produces carcinogenic heterocyclic amines, oxidized cholesterol, lipid peroxides and advanced glycation end products (AGES), all of which are carcinogenic; (5) It is best to boil, poach or stew foods and avoid frying, broiling and roasting; and (6) Avoid the microwave, which tends to destroy nutrients and change blood chemistries.[6]

If physicians caring for cancer patients helped them to improve their diets, several positive effects could be expected. These include: (1) Avoidance of malnutrition (many patients die from malnutrition, rather than the cancer process itself); (2) Minimization of adverse effects from conventional treatment; (3) Optimization of cytotoxic effects on cancer cells; (4) Protection of healthy tissue; (5) Healthy cell proliferation; (6) Immune enhancement, helping to protect the patient against infections; (6) Beneficial hormone changes.

Use of Nutritional Supplements

One of the most controversial areas surrounding the care of cancer patient relates to whether or not they should receive nutritional supplements while undergoing radiation and/or chemotherapy. Many oncologists advise cancer patients not to take any nutritional supplements because they contain anti- oxidants and since radiation and chemotherapy are pro-oxidant, the nutritional supplements theoretically will interfere with the activity of these pro-oxidant treatments. So, the important question is: will nutritional supplements improve or interfere with conventional treatment? Clearly, the answer to this question will depend upon the conventional treatment being used, what supplements and what dosage are being considered, the genetics of the patient and other factors within the patient. Also, environmental factors, such as the patient's diet will also be important.

Before trying to answer the question as to the value of nutritional supplements while undergoing conventional cancer treatment, it might be helpful to discuss the similarities and differences between conventional treatment and nutritional supplements. An ideal chemotherapeutic agent would be one that is highly selective in its action by promoting the destruction of cancer cells while not harming or even nurturing normal cells. Unfortunately, conventional therapy does not do this. Surgery, radiation, chemotherapy, and the newer targeted treatments generally are harmful to normal cells as well as cancer cells; hence the adverse side effects observed during their administration. Some nutritional supplements, on the other hand, may be harmful overall to cancer cells while nurturing normal cells. In other words, nutritional supplements generally have different effects on cancer cells than they have on normal cells. In his excellent, extremely well documented book, *Natural Compounds in Cancer Therapy: Promising Nontoxic Anti-tumor Agents from Plants & Other Natural Sources,*[7] John Boik, PhD outlines a series of pro-cancer events that occur during the development of cancer and shows how natural substances can interfere with these processes without harming normal cells. These events are:

(1) Gene mutations and genetic instability; (2) Gene expression (Switching oncogenes and/or tumor suppressor genes on and off); (3) Abnormal signal transduction; (4) Abnormal cell to cell communication; (5) New blood vessel formation- angiogenesis; (6) Invasion into tissues; (7) Metastasis to other organs; and (8) Immune suppression and other forms of immune evasion.

With multiple references, Boik explains how various natural substances that can be found in nutritional supplements can affect these processes. Many of the substances can affect several steps of the process. For example, Curcumin (derived from turmeric) inhibits PTK, PKC, NFkB and PGE2 synthesis (all of which play a role in inflammation and cancer); inhibits invasive enzymes and stimulates or supports the immune system. EPA (from fish oil) inhibits PKC and PGE2 synthesis (both of which contribute to cancer growth), stimulates or supports the immune system and inhibits invasive enzymes. Vitamin D3 (1.25 Dihydroxy D) is involved with 9 possible anti-cancer effects, melatonin with 15, vitamin A with 13 and Boswellic acid with 15. Many other natural substances have significant anti-cancer effects without harming normal cells.

Boik suggests that many natural com-