Alternative cancer treatments - a professional perspective

by Cindy L. Hopkins and Malcolm L. Brigden

Abstract

More than half of all cancer patients will use some type of alternative treatment during the course of their illness. Unfortunately, some alternative therapies are harmful, and their promoters may be fraudulent. Individuals who try alternative cancer treatments are not poorly educated, but many ultimately abandon conventional medicine. This article reviews major alternative cancer therapies and also emphasizes the vital role health care professionals can play in dealing with these forms of treatment.

Case history

In 1986 Susan B. (a pseudonym), then aged 52, was diagnosed as having an infiltrating duct carcinoma of the breast. The cancer had metastasized to her right lung and lymph nodes. She was told by oncologists that radical surgery combined with intensive chemotherapy might possibly prolong her life by a number of months. Susan, her family, and her husband refused to believe that she would die from cancer. In the family's opinion, the traditional interventions recommended by the health care professionals seemed radical and not necessarily beneficial. Her husband began to look for alternative approaches to heal Susan's cancer, spending many hours in the library researching different clinics and specialists.

Susan and her husband decided that treatment would begin with a complete "cleansing" and "detoxification" of her body. Two trips were made to alternative medicine establishments, the Gerson and Hoxey clinics in Mexico. Susan stopped eating solids and began drinking eight ounces of pure fruit and vegetable juices each hour as well as receiving vitamin and mineral supplements. She also was given three to five coffee enemas (high colonic) daily. These treatments were continued after the family returned to Canada. Susan stated that at that time she did not feel ill and truly believed that she would heal. She continued to work at her job and remained physically active. Being Roman Catholic, she directed her wishes for healing through daily prayers.

Within several months, Susan's breast and arm began to swell and both eventually became open and weeping with obvious infection. As she became physically weak, Susan's days were spent resting and she was given oral morphine since her pain progressively intensified.

At this time the family became aware of a high dose intravenous vitamin C program advocated by some doctors in the United States and Europe. They eventually located a sympathetic doctor in another city. His approach was holistic and utilized a number of alternative treatments as well as vitamin C.

Seventy grams of vitamin C along with five milligrams of vitamin B-12 were infused intravenously daily. At the same time Susan visualized her cancer being destroyed and continued cleansing techniques and oral vitamin supplements. The initial treatments left Susan nauseated and weak, but after five consecutive doses her pain decreased as her strength improved. At this point it must be noted that 10 days after commencing the intravenous vitamin C therapy, Susan also began to receive conventional anti-cancer chemotherapy. However, her oncologist's amazement, the presumed tumour metastasis earlier detected via chest X-ray was no longer visible. Susan received a total of eight chemotherapy treatments and continued vitamin C therapy for a year. Fortunately, she suffered very little of the adverse effects sometimes seen with chemotherapy.

Currently Susan's breast cancer appears to be quiescent and she remains active with a high energy level. She still takes maintenance doses of vitamins and has substantially modified her diet. She now consumes little meat, eating mostly "organic" vegetables and fruit dishes. As in so many cases where alternative therapies are used alongside conventional treatments, it is impossible to say precisely which factors accounted for Susan's apparent remission. This case history, like so many anecdotal reports, raises as many questions as it answers.

The nature of the problem

This year over 100,000 Canadians will be diagnosed as having cancer. Of these, more than 50% will participate in some form of unproven cancer therapy. "Unproven", "unorthodox", "alternative", or "complementary" cancer therapies are those treatments whose value has not been proven in scientifically conducted trials (Cassileth & Brown, 1988). Approximately half the patients who use these unproven therapies will ultimately reject conventional therapy (Brigden, 1987). "Alternative medicine" covers multiple and varied diagnostic techniques, treatments, theories, views, philosophies and ways of measuring outcomes (Dainelk et al, 1988). These methods are advocated by their proponents as treatments freed from conventional scientific controls imposed by the traditional medical establishment (Cassileth & Brown, 1988).

TRAITEMENTS PARALLÈLES DU CANCER - UNE PERSPECTIVE

ABRÉGÉ

Plus de la moitié des personnes souffrant du cancer utiliseront une méthode de traitement parallèle au cours de leur maladie. Malheureusement, certaines thérapies parallèles sont dangereuses et les personnes qui les offrent ne sont parfois que des charlatans. Les patients qui essaiennent les traitements parallèles du cancer ne sont pas moins éduqués que les autres mais ils sont nombreux à abandonner, à la longue, la médecine traditionnelle. Cet article passe en revue les principales thérapies parallèles du cancer et il souligne aussi l'importance capitale du rôle que les professionnels des soins de santé peuvent jouer lorsqu'il est question de ces formes de traitement.

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With the diagnosis of the cancer newly made, any individual is faced with many questions and fears related to treatment and prognosis. Traditional medical approaches to cancer treatment typically involve surgery, chemotherapy, or irradiation used singly or in combination. Unfortunately, with traditional medical therapy the focus of such treatments can be directed more towards the disease process rather than the cancer patient. On the other hand, the focus for "alternative medicine" tends to be on the individual as a whole person rather than a set of biological or physiological systems in need of medical repair. Even when alternative approaches are not holistic, the patient, rather than the disease process seems to be the centre of attention (Kasachoff, 1988).

As the public has become better informed, disfavour with traditional cancer therapy appears to have grown. The known toxic side-effects of chemotherapy and radiotherapy coupled with the much published lack of substantial improvement in cure rates for common solid tumours despite decades of research both have contributed to this dissatisfaction. The reasons why individuals with cancer seek out alternative treatments to be used in conjunction with, or to replace standard medical therapy have been summarized (Cassileth & Brown, 1988; Danielson et al, 1988).

These reasons include:
1. The need to have an active role in their own treatment.
2. The need to have a sense of control over their lives.
3. The possibility of improving quality and/or quantity of life, especially when told "nothing further can be done."
4. The appeal of "natural" remedies as opposed to radiation, surgery or chemotherapy.
5. Possible pressure from family and friends.
6. Mistrust of the conventional medical establishment and its treatments.

This paper discusses the nature of cancer "quackery" as well as exploring three main areas of alternative therapy for cancer: Nutrition and vitamins, mental imagery and visualization, and finally, spiritual healing. In closing, the vital role of health care professionals in dealing with alternative treatments is reviewed.

Cancer quackery

Individuals seeking alternative therapies for cancer are often subjected to the charismatic, capitalistic endeavours of "quacks" (Brigden, 1987). The word "quack" comes from the German "quaken" meaning to brag or boast. It is often difficult for lay individuals to distinguish between safe therapeutic alternatives and the misleading and potentially dangerous therapies offered by quacks. Common features of quacks and quack therapies are outlined in Table One.

Unlike years gone by, the quacks of today are not poorly educated sales people. Many advocates of these therapies are professionals; in one investigation, more than 60% held an MD or Osteopathic degree (Cassileth & Brown, 1988). Impressive diplomas in nutritional therapy or natural healing can be easily purchased through the mail. Having such titles may strengthen the appeal of quacks, as consumers are more likely to believe in their abilities. Most quacks use emotional language and are often very sincere in their beliefs. Their views often appear to criticise established medical practice. For instance, they frequently claim that there are single and well known causes and cures for cancer which the medical profession is purposely suppressing.

Dr. Harold Manner, PhD, founder of the "Metabolic Research Foundation", offers various therapies for a host of different chronic conditions, each of which can be treated at one of his 168 world-wide clinics for a fee in the range of $6000 (Manner, Committee On Unproved Methods Of Cancer Treatment, 1986). One of his anti-cancer therapies involves oral supplements of raw organs. This grandfathers figrure addresses audiences like a revival congregationalist, suggesting that breast cancer can be simply cured by the consumption of raw breast tissue. Like many quacks, when rigorously questioned Dr. Manner has admitted that no published data exists on the effectiveness of his therapies.

A close investigation of individual cancer cases involving testimonials from quacks often reveals that the diagnosis of malignancy was never histologically established or that the individual concerned also received conventional anti-cancer therapy simultaneously (Cassileth & Brown, 1988). Some have argued that there is a positive role for quack therapies that are not actually harmful since they provide hope. However, while one recent major study of alternative versus conventional therapy in advanced cancer patients showed no major survival difference, patients receiving the alternative therapies constantly expressed poorer quality of life scores than those treated with the standard therapy (Cassileth et al, 1991). This finding was a major surprise to the investigators who had hypothesised that the alternative therapy group would have better quality of life scores because they would not be exposed to the potential toxicity of conventional cancer treatments. Another consideration is that families may end up exhausting considerable emotional and financial resources in pursuing these unproven treatments.

Nutrition and vitamins

Many alternative cancer treatments involve the use of specific diets which are said to detoxify or cleanse the body. This "natural" approach is touted as strengthening an individual's intrinsic defenses by boosting the immune system (Herbert & Yarbro, 1986). The concept of "natural" or "herbal" therapies is intuitively appealing to patients who imagine that nature is always kind and gentle.

Dr. Max Gerson, who died in 1959, was a German specialist in internal medicine who founded the Gerson Clinic in Mexico (Committee on Unproved Methods of Cancer Treatment, 1950). This clinic's therapy is based on detoxification and nutritional supplements. Dr. Gerson claimed that cancer was caused by a breakdown of many of the internal organs, especially the liver. He blamed this breakdown on an excess of animal protein, the presence of too many chemicals in food, and an out-of-balance intake of potassium and sodium, secondary to the over-use of synthetic fertilizers and table salt. The Gerson Clinic's diet therapy consists of the permanent removal of artificially sterilized foods and foods containing preservatives, colouring and other additives. Except for oatmeal in the morning, a temporary abstinance from solid foods is required. While coffee, alcohol, tobacco and table salt are excluded from this diet, ironically, as noted in our original case history, coffee enemas are included. Unfortunately, such enema therapies have resulted in electrolyte imbalance, bowel necrosis with perforation, anemia, and toxic colitis with severe deaths reported (Kill, 1988).

Visits similar to Dr. Gerson's are advocated by other holistic practitioners and clinics such as the Howey and Bristol Centers which often also promote a so-called "macrobiotic diet" such as was initially utilized by Susan B. According to macrobiotic theory, cancer is attributed to an imbalance of opposing forces (Yin and Yang) that are said to be correctable by the consumption of whatever force the body lacks (Herbert & Yarbro, 1986). Macrobiotic diets are bland and vegetarian, often emphasizing whole grains and miso, a soybean derivative. In already cachectic cancer patients, macrobiotic diets may result in serious protein-fatt malnutrition as well as deficiencies in iron and vitamins B-12 and C (Filsetti, 1987). These serious deficiencies in the macrobiotic diet may account for the recent disturbing finding that...
women with breast cancer attending the Bristol Center had twice the
dead rate and three times the metastasic rate of women who received
the same treatment but did not go to Bristol (Bagenal et al, 1990).

The use of "mega" doses of vitamins and minerals is also practised to
some degree by the Gerson, Hoxey and Bristol Centers. "Mega vitamin"
therapy describes the consumption of vitamins in amounts of more than
10 times the recommended intake (Nutrition Committee CPS, 1990). A
history of vitamin C, which has been reported as a miraculous anti-cancer
therapeutic agent, provides an interesting example. Vitamin C is
essentially two compounds, L-ascorbic acid and D-dehydroascorbic acid.
Ninety per cent of the vitamin C in the body is stored as ascorbic acid in
the tissues and leukocytes, and vitamin C plays a definite role in immune
function (Block et al, 1991). Vitamin C concentrations can be rapidly
depicted by acute disease, infection or trauma, and a number of chronic
diseases, including cancer, have been associated with low levels of plasma
and leukocyte vitamin C (Young & Newberne, 1981).

Initial studies performed by Linus Pauling and Associates appeared to
support the use of large doses of vitamin C as an effective anti-tumour agent.

### Table Two:

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Physiologic role</th>
<th>Possible toxic results with RNI exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascorbate</td>
<td>Many biochemical functions including anti-oxidant, collagen cartilage and peptide hormone, synthesis, folate acid metabolism, iron absorption, chemotaxis &amp; immunity.</td>
<td>2-4 days: Interferes with tests for glucosuria hematuria. False negative tests for stool blood. 4-9: hypoxuricemia, nephrolithiasis, renal sodium loss. Destroys vitamin B12. Acidosis.</td>
</tr>
<tr>
<td>Thiamin</td>
<td>Activation of acetylation &amp; succinyl CoA for carbohydrate metabolism.</td>
<td>No toxic effects have been reported with large doses in humans.</td>
</tr>
<tr>
<td>Riboflavin</td>
<td>Essential co-factor for the Flavoprotein co-enzymes</td>
<td>No toxic effects have been associated with large doses in humans.</td>
</tr>
<tr>
<td>Niacin</td>
<td>Essential factor for oxidation reduction reactions involving electron transport. Vasodilating &amp; serum cholesterol reducing properties.</td>
<td>&gt; 1 g/day: flushing with burning sensation in hands and face. &gt; 3 g/day: nausea, vomiting, diarrhea, hepatoxicity, cardiac arrhythmias.</td>
</tr>
<tr>
<td>Pyridoxine</td>
<td>Essential for amino acid, lipid &amp; nucleic acid metabolism.</td>
<td>The maximum safe dose is unknown, but 2.6 g/day taken for several months can lead to possibly irreversible peripheral neuropathy.</td>
</tr>
<tr>
<td>Pantothenate</td>
<td>Once conjugated forms co-enzyme A, vital for tissue metabolism.</td>
<td>10-20 g/day is associated with diarrhea &amp; water retention. This dose is not life-threatening.</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>Essential role in vision as well as maintenance of epithelial tissue, bone growth, &amp; reproduction.</td>
<td>Doses of 50,000 IU/day can lead to hypervitaminosis A. Symptoms include: anorexia, coarsening &amp; loss of hair, scaly skin eruptions, irritability, diploria &amp; urticaria. Prolonged hypervitaminosis A will result in enlarged liver, spleen, portal hypertension, ascites, bone fragility, thickening of long bones, deep bone pain &amp; inability to walk.</td>
</tr>
<tr>
<td>Beta Carotene</td>
<td>Converted to Vitamin A.</td>
<td>Hypercarotenemia (250 mg/day) results in a non-toxic deposition in tissues, especially in the skin &amp; eyes.</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>Essential for bone and mineral metabolism.</td>
<td>As little as 25 ug/day over an extended period of time can lead to toxicity. Symptoms include: excessive calcification of bones, calcui, &amp; metastatic calcification of soft tissues.</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>Important anti-oxidant effects particularly for lipids. Also involved with intracellular respiration.</td>
<td>Large doses produce no known toxic effects, but recent evidence suggests that high levels may interfere with vitamin K activity, &amp; blood clotting.</td>
</tr>
<tr>
<td>Cyanocobalamin</td>
<td>Essential nutrient for the blood, gut and nervous system.</td>
<td>No toxic effects have been associated with large doses in humans.</td>
</tr>
<tr>
<td>Folic acid</td>
<td>Essential for the transfer of one carbon units.</td>
<td>Excess folic acid may mask signs of Vitamin B-12 deficiency.</td>
</tr>
<tr>
<td>Iron</td>
<td>Important for haemoglobin myoglobin, &amp; cytochrome enzymes.</td>
<td>Over a long period excess may be toxic to a variety of body tissues, especially the liver (secondary hemochromatosis).</td>
</tr>
<tr>
<td>Zinc</td>
<td>Trace element that is a component of many enzymes, including DNA &amp; RNA, polymerases, and carbonic anhydrase.</td>
<td>An excessive intake can interfere with utilization of copper, calcium &amp; iron, &amp; produces diarrhea, nausea, and vomiting.</td>
</tr>
<tr>
<td>Selenium</td>
<td>Essential trace element that functions as an anti-oxidant.</td>
<td>Large doses (greater than 2000 ug/day) over large periods of time lead to loss of hair &amp; nails, fatigue, nausea, vomiting, &amp; neurological problems.</td>
</tr>
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The results of these clinical trials were said to show that supplemental vitamin C demonstrated significantly survival beneficial effects for patients with advanced cancer. “Not only was life expectancy increased, but improvement in state of well being was also indicated by better appetite, increased mental alertness, and a desire to return to normal life” (Basil et al., 1982). Norman Cousins has also been another popular advocate of high dose vitamin C therapy which he claimed cured his own case of a collagen-vascular disease (Cousins, 1983). Unfortunately, subsequent controlled trials have suggested vitamin C has little beneficial role as a curative cancer therapy. Researchers at the Mayo Clinic showed that high doses of vitamin C, similar to those used by Pauling, provided no survival advantage over placebo when studied in a double blind randomized fashion (Martel et al., 1985). However, there has been a renewal of interest in vitamin C as both a cancer preventive agent and a modifier of toxicity of traditional cancer therapies. In mice and guinea pigs both radiation and chemotherapy toxicity have been reduced by pre-treatment with ascorbate (Block et al., 1991). In light of this research it is interesting that Susan B. experienced such minor side-effects from her chemotherapy while consuming large doses of vitamin C. Further research in this arena will be awaited with interest.

Other vitamin preparations popularly advocated as cancer treatments include vitamins A, E, and B complex. L-tryptophane, which is not a vitamin but has been sometimes touted as the mysterious vitamin "B-17", actually contains cyanide as an active ingredient and has resulted in deaths (Kil, 1988).

How much is too much and at what point can vitamin treatments actually become toxic? Vitamins and minerals are physiologically active chemicals and may have toxic effects at high doses. Vitamin B and C are water soluble and excess amounts are usually excreted in the urine. However, excessive doses of fat soluble vitamins A, D, K, and E may reach toxic levels since they are stored in the body. The daily recommended nutrient intake (RNI) of common vitamins and minerals is summarized in Table Two, along with possible toxicities noted with excessive doses (Nutrition Committee, CPS, 1990).

Even herbal preparations or amino acid supplements are not without potential toxicity. Comfrey herb tea may cause hepatitis, veno-occlusive disease and supplements of the amino acid tryptophan have been linked to a newly described muscular disease, the esoinophilia myalgia syndrome (Moulds & McNeil, 1988; Martin et al., 1990).

The Canadian Cancer Society (CCS) does not encourage self-administration of megadoses of vitamins. Some individuals who have independently modified their therapy with large doses of vitamins are reluctant to inform their nurses or oncologists. The CCS suggests that patients honestly disclose any additional therapies being utilized to avoid potential interactions with established treatments. Sensible advice regarding nutrition and vitamin supplements should always be available to individual cancer patients from appropriately educated individuals.

Mental imagery and visualization therapies

Possible relationships of the body and mind to the immune system and overall health are currently of great interest. The special field of phychoneuroimmunology has evolved in an attempt to study this area (Erasek, 1986). Cancer patients find the concept of a unity of mind and body particularly appealing as it supports a holistic approach to health care. Numerous techniques exist to help with coping and the reduction of stress. Visualization, meditation, relaxation techniques and positive attitudes have long been advocated as part of cancer therapy.

Dr. O. Carl Simonton, radiation oncologist and pioneer in the use of behaviour and positive imagery to treat cancer, has suggested that cancer patients with positive attitudes fare better and survive longer than those with anegative outlook (Committee on Unproven Methods of Cancer Treatment, 1982). Despite the fact that controlled trials have yet to verify these hypotheses, these techniques can be beneficial since they provide individuals with a chance to participate as professionals in their own care. Such involvement aids coping by allowing a degree of control and decreasing feelings of helplessness and hopelessness. A potential negative effect of such therapy is the suggestion that an individual may bear responsibility for the development or progression of cancer (Gray & Doan, 1990). Personality traits that have been suggested as responsible for the development of cancer include poor self image, limited capacity for trust, tendency towards self pity, and inability to develop long-term relationships. These “blame the victim” philosophies appear to be without scientific merit in that several controlled studies have failed to document that any so-called cancer-prone personality truly exists (Erasek, 1986).

The CCS supports the use of visualization when used in conjunction with established conventional therapies since there is evidence that a cancer patient’s emotional well-being is enhanced with active participation in getting well and the maintenance of a positive attitude. One simple relaxation technique that can be used involves the concentration on a single peaceful word or phrase. As a state of relaxation is reached, the strengthening energy of life is visualized as traveling throughout the body with each inhalation. As air is exhaled, the undesirable emotions produced by the illness are visualized exiting the body. Another type of visualization used to complement conventional cancer therapy is “mental imagery”, which often involves picturing tumour destruction. For example, the cancer can be visualized as a crab while the treatment is seen as a shark which subsequently enters the body and devours the crab. Since each cancer patient will value and approach visualization in a different manner, a flexible attitude allowing personal contributions should be maintained towards this type of therapy.

Spirituality and spiritual healing

The power of faith can be seen as a willingness to pray or a belief in an infinite power. While many people readily turn to religion for strength, support and guidance, to others having faith in a supreme being demands a difficult intellectual commitment (Gray & Doan, 1990).

Dr. Anthony Sattiaro has suggested that a spiritual view should be complementary to cancer therapy (Sattiaro, 1984). Dr. Sattiaro was diagnosed with prostate cancer in 1978. His tumour had widely metastasized to skull, right shoulder, sternum, ribs, and spine. Therapeutic management involved excision of both testes and a rib. Surgery left him spiritually and emotionally crushed and, being a doctor, he realized the implications of his prognosis. About this time his own father died of cancer. When driving home from his father’s funeral, he uncharacteristically picked up two hitchhikers. In the course of conversing with them he was introduced to the possibility of an alternative therapy that included spiritual guidance. The alternative approach incorporated an Asian perspective with a diet of seaweed, fish and rice accompanied by meditation, prayer and acupuncture. After 14 months of this therapy, a repeat bone scan showed that he appeared to be free of metastasis. He believed his positive response to be a product of his new spirituality and the power of faith.

Unfortunately, spiritual treatments are not always benign. Some methods may involve incantation, the laying on of hands, or the provision of large donations of money to help the "Ministry of Healing" (Danielson et al., 1988). With some spiritual approaches, cancer may be attributed to an external evil that should be exorcised. A most extreme variation of this theory is psychic surgery which originated in the Philippines. Psychic surgeons appear to remove tumours biologically through manipulations of a target body part. When histologically analyzed, such tumours have been shown to be comprised of animal tissue (Fitzbetti, 1987).

Since there are no established methods for measuring the outcomes or clinical significance of spirituality and faith in healing, its worth remains intrinsically to the individual who utilizes it. Those who do not personally acknowledge the importance of appropriate spirituality should be open and understanding to individuals who value it.

The role of the health care professional

As described in this article, various alternative techniques are currently being utilized by some patients with cancer and other chronic illnesses. In the case of cancer, patients start these treatments shortly after diagnosis and persist with them long after conventional therapy has ceased (Brigden, 1987). Contrary to popular opinion, these treatments are not favoured by the poorly educated or unformed. One study revealed that over 30% of patients using unproven theories were college graduates and almost all had completed high school (Caswell & Brown, 1985). While the majority of published investigations have focused on American patients, there is no reason to believe the situation is any different in Canada (Danielson et al., 1988).

Since many alternative therapies appear at least in part because they are holistic and patient focussed, the role of the health care professional
related to such therapies could involve education, support and the maintenance of a tolerant attitude. (Table Three). Nurses are in a key position to deal with unproven cancer therapies since nurses are frequently the first member of the health care team to see new cancer patients. In addition, patients will often confide information to nurses which they are reluctant to pass on to physicians. In these interactions, the nurse and other health professionals can be careful to avoid the taking of an authoritarian role or making moral judgments. It is desirable that any question, no matter how simplistic it appears, be treated seriously. While studies have focussed on the demographics of all alternate care consumers, no investigations to date have specifically examined differences across cultural groups regarding these treatments. This would comprise a fruitful area for future research.

While each health care professional must decide on the most effective method of utilizing knowledge of alternative therapies in the context of his/her own practice, it is a priority to have up-to-date information on current alternative therapies and especially to be aware of the ones in “vogue” in the local geographical area. Patients must be encouraged to carefully consider conventional medical advice before participating in alternative therapies. Patients who seek out alternative therapies should be made aware of the fact that some of the treatments available maybe are both dangerous and expensive. Health care professionals may emphasize to patients not to turn from conventional treatments if they elect to try unconventional treatments and, most significantly, inform their health care team of all the treatments they are using.

The topics of diet, vitamins, and stress reduction need to be specifically reviewed with each patient. A realistic discussion of food may prevent patients from later embracing bizarre diets and will also make them aware of a concern for their entire being. A practical approach to vitamin therapy is to point out that, even when the typical American diet is deficient, extra doses of the water soluble vitamins such as B and C do not necessarily constitute a major health hazard. However, the potential hazards of an excess of the fat soluble vitamins A, D, K and E may be discussed. Since many patients wonder if a stressful lifestyle was responsible for the origin of their tumour, they can be reassured that, to the best of our current knowledge cancer is not caused by stress or improper attitudes. It may be pointed out that cancer is not a punishment for wrong thinking, a weak will to live, or a loser mentality. At the same time, the provision of advice on relaxation therapy and mental imagery techniques may enhance a sense of control and emotional well-being.

Finally, cancer patients should always be left with hope. They can be reminded that research is continually providing new agents and methods of treatment. Similarly, it is desirable that health care professionals keep a receptive and open mind as new theories, treatments and therapies are developed.

### Acknowledgements

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### References