

Integrative Cancer Care at The Block Center

BY CHRISTIE C. YERBY, ND

As if confronting a potentially fatal disease were not daunting enough, many cancer patients also have to contend with a host of debilitating side effects induced by chemotherapy and radiation treatment. These range from fatigue and hair loss to life-threatening pneumonia and emboli or a crippling wasting of lean muscle mass.

Today, however, more cancer care specialists are recognizing the value of integrative programs that incorporate specialized diets, health-promoting herbs and nutrients, and mind-body therapies to increase the efficacy of conventional cancer treatment while limiting its harmful side effects.^{1,2}

At the forefront of this emerging model of integrative cancer care is Dr. Keith Block,

who has long maintained that nutrients and phytochemicals provide critical support for cancer patients. At the Block Center for Integrative Cancer Treatment, patients benefit from customized treatment regimens designed to boost immunity, mitigate side effects, help prevent the loss of muscle mass (cachexia), maximize the efficacy of chemotherapy, and stop the spread of cancer.

In this article, we describe how Dr. Block's newly released book *Life Over Cancer* and approach to integrative cancer care are providing patients with a "survivor's edge" by enhancing quality of life, reducing toxicity, and improving patient outcomes. This approach charts an exciting new future for comprehensive cancer treatment. >>

Unique, Individualized Cancer Care

Located in Evanston, Illinois, the Block Center for Integrative Cancer Treatment was founded in 1980 by Drs. Keith and Penny Block. This research-based treatment center combines the best of conventional cancer treatment modalities with complementary non-drug therapies such as personalized nutritional supplementation, customized exercise, therapeutic diet, massage, and training in yoga, meditation, and mind-body stress care. The Center seeks to provide comprehensive, integrative cancer care through individualized treatment regimens aimed at restoring the biological integrity of the patient and forming the foundation of a long-lasting recovery.

The Block Center's approach to cancer care begins with a detailed patient assessment, including biochemical, molecular and gene-based profiles and clinical evaluations of nutritional and physical status, quality of life, and well-being. These data are used to create an individualized care plan that emphasizes patient involvement and includes a customized nutritional regimen, with therapeutic physical, psychological, and emotional interventions. Since each patient's biology is continually changing, treatment options are constantly reviewed and revised based on the most current diagnostic and medical data. This means that every component of care is individualized to match a patient's unique biology, disease and treatment specifics, and personal and family needs.

"We provide detailed education for each patient, including a strong biological understanding of their comprehensive clinical treatment plan and hands-on training," Dr. Block tells *Life Extension*. "It's not

enough to simply prescribe—patients need to be trained and equipped to carry out a therapeutic regimen. We believe patients must be active participants in their care—that is, they must 'own' it."

Block Center's Cancer Rehabilitation Program

According to Dr. Block, "We won't start chemotherapy with a patient who is not fit enough to withstand and benefit from the treatment. Otherwise, it is unfair to the patient and gives the cancer a decided advantage. The disease already has a head start, so cancer patients must be physically, psychologically, and nutritionally strengthened to be able to take it on."

This rehabilitation program, which is tailored to each patient and is monitored throughout treatment, is regularly modified according to the patient's changing condition, and continues until full recovery. Patients on conventional chemotherapy often suffer from post-treatment symptoms such as fatigue, "chemo brain" (changes in memory and attention following chemotherapy), physical weakness, and depression. The Block Center's rehabilitation program enables patients to better tolerate chemotherapy, and to regain and rebuild their resilience. Conventional treatments can lead to a burden of toxic metabolites. On entering the blood, these complexes can trigger inflammatory cascades resulting in increased mutation and thus more aggressive cancer cells. This can lead to treatment resistance and a greater potential for progression and recurrence. Detoxification strategies are a critical aspect of addressing these metabolites and the rehabilitative process.





What You Need to Know

Chronotherapy: Maximizing the Efficacy of Chemotherapy

When chemotherapy is required, doctors at the Block Center use a unique method of drug delivery called *chronomodulated chemotherapy*, also known as *chronotherapy*, which seeks to coordinate the body's biological rhythms with the application of chemotherapy. Every drug has an optimal time of application when it is least toxic and most effective.

The Block Center is the first US medical clinic to use a portable, computerized, FDA-approved pump to administer chronotherapy. Unlike conventionally infused chemotherapy, this chronomodulated method provides a coordinated rhythm of dosing based on "timing." Infusion of the chemotherapy drug resembles a perfectly symmetrical wave, called a *sine wave curve*: it starts slowly and ratchets up, hour by hour, slowly increasing to the middle point of the cycle, where it peaks and infuses most of the drug, and then slowly ratchets back down. The timing of the drug is based on several important factors related to the medication's characteristics, the patient's circadian rhythms, and the nature of the cancer. This coordination of biological rhythms creates a better "kill rate" for the cancer, with less toxicity to healthy cells. Patients are able to wear this small portable pump in a fanny pack around their waist, allowing them to be active during treatment and maintain routine activities.³⁻⁵

Patients who undergo these advanced chemotherapy treatments in the context of a full integrative medical program often report only mild or negligible side effects. This is highly significant, since as many as a third of all cancer patients abandon chemotherapy before its completion due to their inability to tolerate its physical side effects and the associated psychological stress.

In fact, published research confirms that chronotherapy is associated with improved outcomes, including reduced toxicity and improved survival. A review of patients with metastatic colon cancer found that chronomodulated chemotherapy *halved* toxicity and *doubled* treatment response.⁶ Another review found that in patients with advanced metastatic ovarian cancer, optimal timing of chemotherapy *quadrupled* five-year survival rates, in addition to reducing toxic side effects by 50%.⁷

Integrative Cancer Management

- Conventional cancer care centers on chemotherapy and radiation, causing many disabling side effects, ranging from fatigue and nausea to muscle wasting.
- An integrative approach to cancer care uses lifestyle modification, nutrition and supplementation, therapeutic movement, and mind-body interventions to maximize the efficacy and minimize the side effects of treatment. As growing evidence supports the validity of integrative approaches, more cancer specialists are embracing this treatment strategy.
- The Block Center for Integrative Cancer Treatment is one of the nation's leaders in comprehensive cancer treatment, combining conventional oncology modalities with complementary strategies to help their patients successfully conquer cancer and achieve lifelong wellness.
- Chronotherapy is a novel application of chemotherapy that coordinates drug treatment with the body's biological rhythms. By administering chemotherapy at certain times according to the characteristics of the medication, the patient, and the cancer, greater effects and lower toxicity may be achieved.
- Dr. Block has developed a three-part model including a core nutraceutical program to address the broad needs of cancer patients. The first component includes lifestyle, fitness, mind-spirit, and a solid nutritional foundation. A second component targets the cancer and supports the environment the cancer cells reside in, often referred to as the biochemical or microenvironment. A third component helps patients optimize their treatment while enhancing quality of life before, during, and after surgery, radiation, or chemotherapy treatment.

Dr. Block says that chronotherapy has enabled patients who were unable to tolerate conventional chemotherapy to use the same chemotherapy drug they previously stopped and to complete chemotherapy treatment. Chronotherapy has also benefited patients whose cancers were previously inoperable, by reducing the size of their tumors enough to make surgery possible. Over 40 major centers in Europe are currently participating in collaborative research using this method of chemotherapy administration.

Establishing Optimal Health Through Nutrition

Dr. Block believes that it is as critical to establish optimal health through integrative and nutritional interventions, especially in treating advanced cancer, as it is to eradicate the disease itself.

“We focus on developing a path to recovery through a comprehensive and integrative program of treatment and care,” he notes. “We view illness as a turning point, a wake-up call for reclaiming your health and transforming your life.”

For over two decades, Dr. Block and his research team have been investigating the effect of nutritional interventions on various cancers among different patient populations. These findings have been incorporated in the Center’s nutritional program, which emphasizes nutrients such as fish oil rich in EPA (eicosapentaenoic acid), EGCG (epigallocatechin gallate, the principal polyphenol in green tea), selenium, glycine, silymarin (a flavonoid in milk thistle),^{1,2} and



DIM (diindolylmethane, an indole found in cruciferous vegetables such as broccoli and cauliflower).

In addressing difficult-to-treat oncology issues, particularly for patients with advanced cancer, Dr. Block will adopt more aggressive nutritional and medical strategies, “leaving no stone unturned” for cancer management. Besides improving stamina and vitality, Dr. Block’s program now targets malignancy by inhibiting angiogenesis, inducing programmed cell death, blocking cellular growth, and boosting immune function.

Building a Nutritional Foundation

The Block Center’s core nutraceutical program for cancer management has three components: first, laying a foundation of nutritional support; second, targeting the biochemical environment the disease resides in; and third, addressing the molecular pattern of the disease, along with the coupling of nutraceuticals with treatments in order to improve response while reducing toxicity. The first part focuses on meeting the patient’s basic nutritional needs. Nutritional programs are personalized through testing, and implemented with the goal of restoring stamina and vitality. The Block program recommends a diet rich in antioxidants and whole plant-based supplements that reflect the full spectrum of nutrients found in food. Dr. Block believes that combinations of antioxidants have more potent anticancer effects than individual nutrients.⁸⁻¹⁰

A diet low in saturated fats and high in fiber, complex carbohydrates, fruits, cruciferous vegetables, omega-3 fatty acids, and plant-based sources of protein helps form this foundation. This nutritional strategy targets the patient’s internal terrain, creating an environment inhospitable to further disease. This is intended to help curtail inflammation, reduce free-radical damage, minimize platelet activation (which can lead to dangerous blood clotting), manage blood sugar surges, and reduce serum levels of insulin-like growth factor 1, or IGF-1 (which stimulates cell multiplication and inhibits cell death).

Integrated into the core Block nutrition plan are additional micronutrients, macronutrients, and phytochemicals that more fully and quickly improve general resistance. For many cancer patients, these may include vitamin B12, selenium, beta-carotene, zinc, folic acid, vitamin C, vitamin D, gamma tocopherol, vitamin K, calcium, magnesium, chromium, lycopene, and lutein. Dr. Block also uses a Chinese botanical adaptogenic formula to increase the body’s resistance to stress, help patients overcome fatigue and malaise induced by chemotherapy and radiation, and improve vitality.



What is “Chronobiology”?

Chronobiology is the science of biological rhythms in living organisms. In humans, it is the study of cycles that govern our “biological clock.” These include the daily sleep-wake cycle, monthly menstrual cycle, and other biorhythms that control the production of certain hormones and the workings of the immune system. These “clocks” are reset by the cues of light and dark.

Chronotherapy is the coordination of our biological rhythms with medical treatment. The time of day when medication is given, and sometimes the dose of the medication, is determined by patients’ biological rhythms, ideally both increasing the medication’s effectiveness and minimizing its undesirable side effects. In cancer treatment, timing the administration of chemotherapy drugs with the patient’s biological rhythms is called *chronomodulated chemotherapy*, or *chronotherapy*.

Unlike conventional cancer management, the Block Center’s foundational program targets one of the most serious consequences of the disease, known as *cancer cachexia*. This is a type of malnutrition associated with appetite suppression, muscle wasting, weight loss, and weakness. Dr. Block quotes research indicating that 20-30% of cancer patients actually die from complications of malnutrition, rather than from cancer itself. In addition, he says, 80% of cancer patients suffer from some form of clinical malnutrition, yet many oncologists still consider proper nutrition an “incidental” rather than a crucial factor in the battle against cancer.

Diets that are high in EPA-rich fish oil may help cancer patients suffering from cachexia to gain weight and improve their nutritional status.¹¹ EPA may also counter cancer cachexia through its anti-inflammatory effects and its ability to displace arachidonic acid, a pro-inflammatory omega-6 fatty acid, from cell membranes.¹² Reducing intake of foods containing arachidonic acid, such as red meat, egg yolks, poultry, and dairy products, can also help shift the body’s biochemistry away from a pro-inflammatory environment. A high intake of L-glutamine can likewise have a beneficial muscle-sparing effect to help prevent cancer cachexia.¹³⁻¹⁵

Targeting the Disease and Its Microenvironment

The second part of the program targets the disease itself by blocking *angiogenesis* (the growth of blood vessels that feed tumors), slowing cancer growth, facilitating apoptosis (programmed cancer cell death), and preventing tumor *metastasis* (cancer spread) throughout the body. Some of these biomarkers include a unique set of biochemical tests that include inflammatory, coagulation, and oxidative labs, and others that zero in on dysglycemia and stress maladaptation. Dr. Block uses specific phytochemicals and nutrients to address this aspect of cancer treatment. “Plant medicines have multiple potential uses—they are pleiotrophs—and produce many effects that enable them to hit more than one target at a time,” he explains.

Based on extensive research, Dr. Block and his associates have pioneered what they call *multifocal angiostatic therapy*. By combining selected nutritional agents to inhibit angiogenesis, it may be possible to cut off the vascular supply needed to fuel tumor growth. Examples of compounds that Block and his team are evaluating include fish oil, EGCG from green tea, selenium, glycine, silymarin, DIM (diindolylmethane), soy, genistein (a soy-derived phytoestrogen), and quercetin (a bioflavonoid derived from fruits and vegetables). His focus includes using multi-targeted, multi-ingredient formulations to help support various needs cancer patients face and increasing bioavailability through nanoparticle supplementation.

Another important component of cancer management is slowing growth and blocking metastasis, the process by which cancer spreads from where it first arose as a primary tumor to secondary locations in the





Supplements That Complement Cancer Chemotherapy

According to Dr. Block, selected nutritional supplements can improve chemotherapy treatment by enabling the patient to tolerate the full drug dose, decreasing or eliminating drug side effects, and reducing the need to interrupt treatment schedules. These variables greatly influence the efficacy of chemotherapy.

An ongoing focus of clinical research at the Block Center is determining whether it is possible to “re-challenge” patients by using the same treatment regimen in which their drugs previously failed them, in the hopes of getting an improved response. Positive results have been seen with the following nutrients and phytochemicals:

- **Milk thistle** is mostly known for its protective effects against chemical toxicity, but it can also prevent the loss of glutathione, which is fairly common in cancer patients.
- **Ginger** has detoxification potential as well as significant anti-inflammatory effects. It inhibits both the *cyclooxygenase* and *lipoyxygenase* inflammatory pathways, and is very effective in reducing nausea and vomiting.
- **Lipoic acid** may counter neuropathy, a risk for patients using the chemotherapy drug *paclitaxel* (Taxol®).
- **Coenzyme Q10** is recommended for patients using the chemotherapy drugs *doxorubicin* (Adriamycin®, Doxil®) and *trastuzumab* (Herceptin®), to counteract the risk of cardiomyopathy.
- **Fu Zheng** formulas (a Chinese adaptogen) may help patients improve vitality and overcome the fatigue and malaise associated with chemotherapy and radiation therapy.
- **Protein and amino acid** support formulas have been helpful in reducing muscle loss, and in maintaining immune and biological functioning.

Other supplements that Dr. Block believes may enhance cancer treatment are:

Glutamine. When used in conjunction with chemotherapy, glutamine may reduce some side effects of treatment, including mouth sores, neuropathy, and diarrhea. In addition, glutamine may increase tumor sensitivity to chemotherapy.

Fish oil may play an important role in cancer treatment through its ability to help suppress inflammation. Additionally, “fish oil may help reduce the resistance that cancer cells often develop from continued exposure to chemotherapy,” says Dr. Block. “Some studies have shown that breast cancer patients who respond favorably to chemotherapy have higher levels of omega-3s than those who do not respond.”

Green tea is a potent antioxidant and anti-inflammatory agent. Green tea consumption has been associated with a reduced occurrence of early-stage breast cancer and a diminished risk of lymph node metastases. Green tea may also help tumors from establishing their own blood supply and prevent the progression of a pre-cancerous prostate gland condition. It appears that one would need to drink at least three to five cups a day to derive these benefits.



The Block Center tests patients to determine their unique nutritional, biological, and medical needs, and only after implementing a healthy diet does the Center initiate an individualized supplement program.

“The value of nutritional agents in clinical use is without question,” says Dr. Block. “The problem that can arise concerns the context in which they’re used. We have repeatedly seen people on poor diets respond less favorably to supplements. This suggests that a poor diet can sabotage a supplement program, and that many people have the mistaken belief that as long as they’re taking supplements, they can go ahead and continue to eat foods that would actually tend to promote degenerative disease. Scientific evidence strongly supports the benefit of a healthy diet as the foundation for a supplement program.”

body. According to Dr. Block, a number of phytonutrients and botanical agents may accomplish this.¹⁶⁻¹⁸ For example, in animal studies, modified citrus pectin fights cancer by inhibiting primary tumor growth and suppressing cancer metastasis.^{16,17} Modified citrus pectin may hold promise for men whose prostate cancer has failed to respond fully to conventional treatments. Until recently, doctors routinely measured levels of prostate-specific antigen (PSA), a marker of prostate cancer or disease. Rising levels of PSA have been used to measure disease progression. Administering modified citrus pectin to these men increases their PSA doubling time, indicating a slowing of disease progression.¹⁸

In addition to fighting angiogenesis, EGCG from green tea has anti-metastatic properties that may block the spread of tumors. Studies suggest that EGCG may work in part by blocking the activity of matrix metalloproteinase enzymes. When over-expressed, these enzymes promote tumor angiogenesis and metastasis.^{19,20} Other nutrients that may help prevent metastasis are silibinin,²¹ a flavonoid derived from milk thistle, and bromelain,²² an enzyme fraction derived from pineapple.

By decreasing levels of immune system white blood cells, conventional cancer treatment often leaves patients vulnerable to infections. Thus, boosting the body's immune defenses and surveillance in order to prevent infection is an important component in this part of Dr. Block's program.

Natural killer cells in the immune system are crucial to effective immune defense. Their essential functions include killing virus-infected cells of the body, and seeking and destroying cancer cells. The nutrients selenium, beta-carotene, and zinc increase circulating levels of natural killer cells and boost their cancer-killing activity.²³⁻²⁷ Dr. Block also recommends beta-glucans, probiotics, and glutamine for supporting immune health in cancer patients.

Improving Quality of Life

The Block Center seeks to strengthen a cancer patient's health before, during, and after chemotherapy. Implementing a comprehensive, individualized program that includes dietary and nutritional support, physical exercise, and mind-body stress-reduction techniques can help cancer patients minimize the complications of their disease and the side effects associated with conventional cancer treatment. Because patients often feel abandoned following the completion of chemotherapy, the Block program continues even after a patient returns home once active treatment is completed. One goal is to improve patients' odds against the potential of disease recurrence. This

continuity, extending beyond treatment, not only helps avoid the "disconnect from care" often seen in conventional cancer treatment, but also reduces the chances of ongoing complications from the disease.

Conclusion

Dr. Block's comprehensive approach is informed by first-hand personal experience with the challenges of fighting cancer and its complications. As a teenager, he witnessed his grandmother's struggle with breast cancer. As her body wasted, her doctors did nothing to halt her



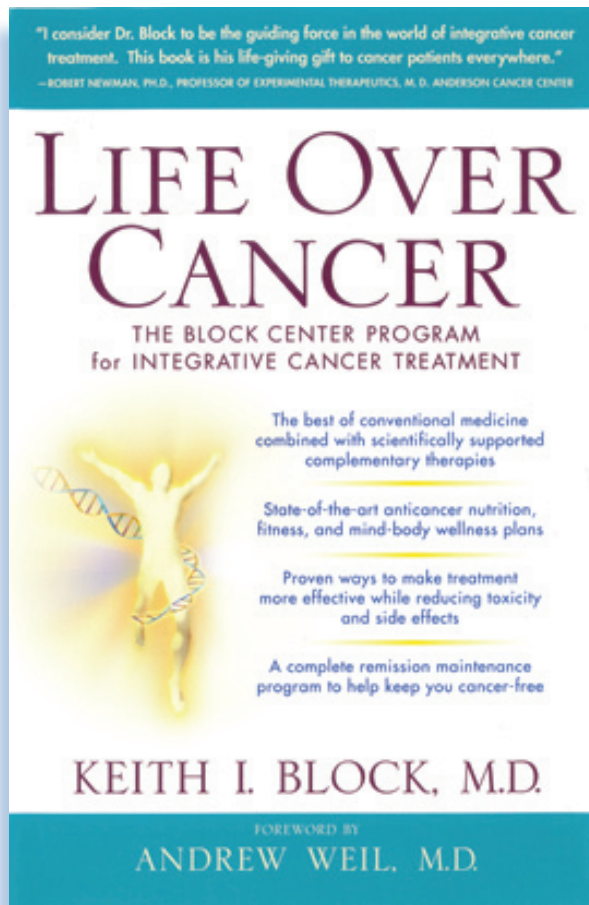
physical decline—not nutritionally, physically, or even medically. She eventually succumbed to the disease. Witnessing his grandmother's experience engendered a deeper insight into the courage, strength, and unrelenting fight needed to endure and survive cancer.

"It is no longer a question of whether genuine integrative treatment helps patients, but rather why all cancer patients are not given a more meaningful approach to help combat their cancer," he says. "Since every surgeon would rather have a patient who is more nutritionally, emotionally, and physically fit, why shouldn't every physician treating cancer feel the same way?" ●

For more information, please visit www.blockmd.com or call 1-847-492-3040.

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Life Over Cancer

By Keith I. Block, MD

Even for those who beat cancer, complete remission is rarely synonymous with a *cure* without proper follow-up care. In his new book, *Life Over Cancer*, Dr. Keith Block, widely regarded as the most prominent integrative cancer specialist in the US, has distilled nearly 30 years of clinical experience to reversing the course of cancer and keeping it from returning. Based on the Block Center's clinical research program, he details how to customize a treatment plan, blending the best conventional approaches with personalized, scientifically based, effective complementary and nutraceutical therapies to keep cancer at bay. In this exclusive excerpt from *Life Over Cancer*, we reveal just a few of the reasons why the Block Center's integrative cancer treatment program has helped patients on the road to greater longevity, beyond their original prognoses. > >

The most effective way to gain control of a systemic disease is to confront it simultaneously at every one of its vulnerable points. If the systemic disorder that allowed cancer to take hold and grow is not eliminated, the cancer may reappear, and with greater resilience than initially. That is what happened to a patient who came to see me after he had been diagnosed with kidney cancer, which his surgeon had removed with a new technique called radiofrequency ablation. Following the procedure, the physician spoke those wonderful words, “You are cancer-free!” You can imagine this man’s shock, then, when he was later diagnosed with metastatic kidney cancer that had spread to his lungs. His doctor’s enthusiasm had left him completely unprepared for the recurrence. My patient felt that he had lost valuable time; assuming his cancer was behind him, he’d never looked into further treatment options. But it was the lack of any attempt to reduce his very real risks of a recurrence that bothered him the most.

That is why Block Center staff members advise patients that even with successful surgery, radiotherapy, or chemotherapy, you deserve and need a follow-up plan and a remission maintenance program to reduce your risk of recurrence. While I believe in the psychological and physical benefits of optimism, I don’t want optimism to get in the way of preparedness. I don’t want you to let down your guard. Although mainstream oncology is excellent at reducing the bulk of visible disease, that is only one part of the battle. Cancer only infrequently disappears after surgery, radiotherapy, or chemotherapy. Because some malignant cells are usually left behind, I believe that telling patients they are “cancer-free,” implying that they are through with care, can be detrimental to a full recovery.

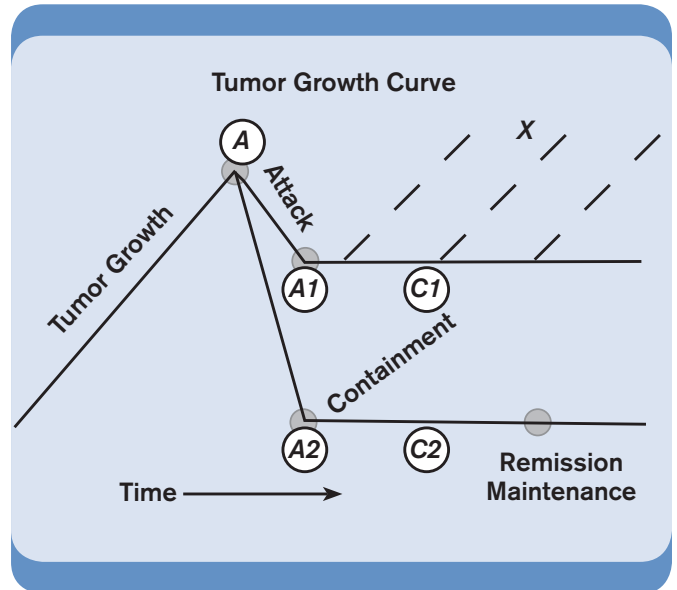
This is not to suggest you shouldn’t be relieved and enthusiastic after being pronounced in remission. You certainly should. But you also need to use the period immediately following treatment, when visible disease has been eliminated, to begin a program aimed at mopping up any remaining invisible cells and reducing your odds of ever seeing cancer again.



Just as today no cardiac surgeon would think of sending a patient off after bypass surgery without a referral to a program that teaches diet and exercise, so you should not be sent off after cancer therapy without something to do to help you stay in remission.

Mapping Tumor Growth: The Dynamics of Cancer’s Life Cycle

The three major phases of cancer treatment are shown in the figure below.



Most cancers are diagnosed where the growth curve peaks, marked A, or just before. By this point, the tumor has been growing and active for quite some time. This is when your physician will implement the attack phase of treatment, which uses some combination of conventional therapies such as surgery, chemotherapy, radiation, and molecular target therapies to reduce or eliminate the tumor. Known as cytoreduction (cyto- means cell), this process is intended to vanquish both the observable tumor and the microscopic individual malignant cells. The result is a steep drop in the tumor growth curve. An effective attack phase brings about either partial remission, shown at point A1 on the chart, or a complete remission, shown at point A2. In a partial remission, evidence of cancer is still visible in scans, X-rays, or MRIs. In a complete remission, there is no visible cancer, although residual cancer cells may lie invisible in the body.

As long as any residual cells remain dormant (whether you have visible disease or not), you can help yourself remain free of clinical disease by utilizing therapies that help control growth. This containment phase is represented by either of the flat lines C1 and C2 in the figure above. Although visible disease may

exist (C1) or residual cells may remain (C2), strategies can be implemented to help curb further disease growth or proliferation of leftover residual cells. The containment phase focuses on containing and controlling the growth of these cells with a vigorous application of natural and conventional therapies to provide you with a survivor's edge.

For those of you in complete remission, congratulations! You will commence on path C2, using the strategies of the containment phase to consolidate your gains and keep any invisible cancer cells from proliferating. However, a word of caution: with some exceptions, even complete remission is rarely synonymous with cure. Returning to your old lifestyle, which may have contributed to your cancer, could also contribute to its return. After being on path C2 for about a year (the exact time depends on your specific circumstances), you can transition from the containment phase to the remission maintenance phase, which uses strategies that are closer to those of cancer prevention. For those of you with a partial remission, my goal is to keep you on path C1, with the hope that you will move toward complete remission, either when our rehabilitation program enables you to return to cytoreductive therapies or when new conventional therapies become available.

It is important to recognize that, as happened to my patient with metastatic kidney cancer, a seemingly successful attack phase may not be a permanent cure. Eliminating the primary tumor may have little or no impact on rogue malignant cells or micrometastases that may have escaped and are setting up camp near the original tumor, in nearby lymph nodes, or in distant organs. These cells have not succumbed to chemo or radiation, usually because they have undergone extreme genetic makeovers that make them resistant to treatment; they can therefore be more aggressive and harder to vanquish than the original tumor. These renegade cells can rear their heads months or even years later, as shown in the upper right quadrant of the figure, the area labeled X. Although the figure shows repopulation occurring after partial remission, it can also occur even years after a complete remission.

It is impossible to know with certainty whether residual cells will sit quiescent in the body until the patient dies of old age or whether they will come roaring back. That's why I believe in playing it safe, blending conventional oncology, innovative approaches to conventional care, experimental treatments (including immunotherapies and gene therapies), off-label use of medicines, nutrition, supplements, targeted therapies, and lifestyle and mind-spirit approaches to keep residual cells in check.



Attack

The goal of attack, or cytoreduction, is to shrink and debulk the tumor and flatten the tumor growth curve with the least amount of toxicity. Our aim is to come as close as possible to eliminating all visible disease. From the perspective of integrative oncology, this is a time when conventional treatments can work synergistically with natural therapies that pack an anticancer wallop. These natural therapies, including complementary nutrition and supplementation, increase the power of conventional therapies while making them safer and less draining so you can tolerate more of a toxic drug with fewer side effects. Skipping doses or lowering dosage, the commonest responses to chemo drug toxicity, means less tumor shrinkage or cancer cell killing. So by including nutrition and supplementation, you can reduce treatment-related toxicity, and improve tumor response and overall survival. By mitigating side effects, you can complete the full course of treatment and thus improve your chance of putting your cancer into remission. Blending mainstream and complementary therapies may lead to results like those [described in this book]: our patients with metastatic breast and prostate cancer used the same radiation, hormones, and chemotherapy drugs as other patients but had median survivals over twice as long as would generally be expected.¹ Our results showed a 38-month median survival—an additional eighteen months' survival—for the breast cancer study, and a 60-month median survival—an additional thirty months—for the prostate cancer group. (Consider that some new drugs are approved on the basis of their lengthening survival by only two to three months.)

The attack phase needs to be carried out in close collaboration with a supportive medical team. At this point your relationship with your treating physician is extremely important; make sure it is one that makes you feel confident and comfortable.

Containment

The goal of the containment phase is to keep the tumor growth curve as flat as possible for as long as possible. Whether you have visible disease or not, containing and controlling cell growth will help you hold the gains you achieved during the attack phase. This is a time to be particularly aggressive, using diet, nutritional therapy, and other integrative therapies. I have seen these strategies work even with patients who had been too debilitated to tolerate further conventional treatment: through an aggressive rehabilitation program, we have been able to assist many of them in getting well enough to return to treatment. These strategies can also help patients whose cancers have resisted conventional treatments: through experimental and off-label drugs, aggressive nutritional therapies, and natural medicines, we have been able to help many patients contain the cancer enough that the patient can live with it as a chronic illness for many years.

Remission Maintenance

If you have achieved complete remission, celebrate! But don't assume you are out of the woods. Because rogue, resistant cancer cells often remain in the body, you need a long-term program that fights the regrowth of any leftover cells. The longer you are in remission, the better your chances are of beating it back once



again if it does recur. If nothing else, the longer you hang in there the more medical breakthroughs you will be able to take advantage of. That is why, in contrast to a focus on just shrinking a tumor, I also put a premium on keeping rogue cells in check. By following a program of remission maintenance, you can improve your odds and reduce the worry that a few cancer cells may remain.

Doug: Life Is Different Now

I know the integrative approach can be a lot to manage when you're already stressed to the hilt. Unfortunately, in the absence of true cancer cures, we're forced to confront cancer on its own terms. This wily, multifaceted adversary requires equally wily, multifaceted modes of healing. And your response to cancer needs to be both thorough and lifelong.

In September 1995, in his third week of marriage, twenty-nine-year-old Doug was hit with the awful news that he had a brain tumor, and probably had only six months to live. But he and his wife had a can-do spirit and worked with our center through a grueling road of treatments. Early in his illness, at a routine follow-up meeting, I was explaining to Doug that he needed to make permanent adjustments in the way he was going to live his life. At that point, he looked me in the face, nose to nose, and started shouting and crying, "I want my life back!"

"I know you do," I replied.

That made him start shrieking even louder. "I don't think you understand—I want my life back!"

I told him calmly but with certainty that regardless of whether or not he was able to overcome his disease, he would never have his old life back the way it was, but it was possible to have a new life.

That's when Doug said it hit him like a ton of bricks: he and his wife had been viewing his ordeal as if he were training for the Olympics, feeling that once he was victoriously in remission, with his gold medal in hand, the event would be over.

Then they looked at each other and acknowledged instantly that life was never going to be the same as it once was. Life was just different now, and the efforts to keep cancer at bay would have to be lifelong. As of the writing of this book, Doug does continue to thrive and remain cancer-free fourteen years after his original diagnosis.

The Chemotherapy Support Program

Though enthusiastic about our philosophy of care, Gerry was reluctant to begin chemotherapy again. The progression of his disease had left him extremely weak, and he expressed concern about the effects of chemo. When I assured him that we would design a program

intended to enhance his treatment tolerance, reduce the toxicity of his treatment, and boost its effectiveness (testing had identified the “molecular fingerprint” of Gerry’s cancer), he agreed to give it a try. His program included therapeutic nutrition to boost stamina, counter fatigue, and reduce chemo’s side effects; mind-spirit interventions to reduce stress; and exercise to build up his strength and fitness. Crucially, we administered the chemo through chronotherapy via an FDA-approved portable pump, small enough to fit in a fanny pack, which delivered supplemental intravenous nutrients at the same time as the chemo drug.

“I couldn’t believe how good I felt throughout my chronotherapy treatments,” Gerry told me later. “Because the pump was portable, I was able to remain active. Having been confined to a hospital room for my previous chemotherapy, this freedom was invigorating.” With each of his scans, Gerry showed improvement. Because he reported no troubling side effects and tolerated his chronotherapy treatments so well, there was no need to reduce the dose. After seven chronotherapy sessions (five fewer than he received of conventional chemotherapy), Gerry showed no evidence of disease, and today in 2009, seven years following his original diagnosis, he is in complete remission and back at work.

Innovative Approaches from Conventional Medicine

Chronotherapy. Timing chemotherapy can increase survival. The reason is that cancer cells are more sensitive to treatment at specific times of night or day.² Most chemotherapy drugs work best when cancer cells are active and dividing, which makes them most vulnerable to chemo, and are least toxic when healthy cells are at rest. Ideally, then, you would time chemo



for this period. Why does chronotherapy lead to fewer side effects than untimed chemo?³ Chemo drugs target dividing cells, because malignant cells are demons of division. But the drugs cannot tell a healthy dividing cell from an aberrantly dividing one, so the former are often also killed. Among the normal cells that are fast-dividing are gastrointestinal cells (whose death by chemo leads to nausea, mouth sores, ulcers, vomiting, and other gastrointestinal effects), bone marrow cells (whose death by chemo leads to dangerous drops in red and white blood cells), and hair follicle cells (whose death leads to balding). But these normal cells divide rapidly only at certain times of day; they all have a resting phase. With chronotherapy, you can receive toxic drugs when cancer cells are actively dividing but normal cells are resting and therefore less likely to be targeted. As you know, if toxic effects get bad enough, your oncologist may be forced to interrupt your treatment, reduce dosing, or stop the treatment altogether, allowing your tumor just the respite it needs to start growing back. That’s not what you want. This is probably one of the reasons why cancer patients getting chronotherapy tolerate treatment better and survive longer than patients getting standard schedules of drug delivery: spared toxic side effects, they can receive the full chemo regimen.⁴

Another reason is that each timed dose of chemotherapy can be more potent than the identical dose of the identical chemo drug given without regard to timing.⁵ That’s because each cell type and each drug has a period of peak sensitivity. For instance, normal rectal cells divide more often during the day and less at night, so by giving chemotherapy for colon cancer at night we can avoid damaging the normal rectal cells but kill more malignant cells.

Chronotherapy has significantly increased patients’ survival. One 1999 study reported that it increased the five-year survival of patients with advanced ovarian and bladder cancers fourfold, and a multicenter trial in Europe found that patients with advanced metastatic colorectal cancer receiving the chemotherapy drug 5-FU (5-fluorouracil) via chronotherapy had a 50 percent greater median survival time than patients receiving the same drug on a conventional schedule.⁶ In a 2001 study of chronotherapy for advanced ovarian cancer (stages III and IV), the chronotherapy group had half as many adverse side effects as patients receiving standard chemotherapy; the latter had to have their drug dosages reduced or chemo treatment delayed due to side effects four times as often as the chronotherapy group. This is undoubtedly part of the reason why 44 percent of the chronotherapy group survived for five years compared with 11 percent of the control group.⁷



A major benefit of chronotherapy is that patients can rechallenge their cancer by using the same drugs in a chronotherapy regimen that they had previously been unable to tolerate with standard dosing. In 2005, the Block Center conducted a study of twenty-six of our colon cancer patients. Six were in stage III and twenty in stage IV; the majority of the stage IV patients received chronotherapy after initial therapy with conventional timing had proved ineffective or intolerable (due to side effects such as mucositis, nausea, and diarrhea severe enough to require treatment in the intensive care unit). But when we gave the patients the same drugs using chronotherapy, none suffered serious toxicity. (In patients like this receiving the same drugs but through standard chemo, the rate of severe toxicity ranges from 24 percent to 65 percent.) What's more, our twenty stage IV patients had a median survival of twenty-seven months, an excellent record in a disease with a median survival of twelve to eighteen months.⁸ Let me underline this: if you suffer few to no severe toxic side effects that necessitate stopping or delaying your chemo, you have a better chance at long-term survival.⁹

Chronotherapy is optimally given over several hours, ratcheting from a minimal dose to a peak dose, and then back down. It is possible to deliver optimally timed chemotherapy in a hospital, so that if your peak sensitivity to a specific drug is, say, 4 A.M. you can receive your peak dose of chemo then. But it is much more convenient to use specialized portable pumps that can be programmed to deliver a drug whenever cancer cells are most susceptible to the drug and normal cells are least vulnerable to its toxicity, as I did with Gerry.

I have used chronotherapy since the 1990s, but as I write there is only one other cancer center in the United States that offers chronotherapy, that run by a pioneer of this field, William Hrushesky, at the Veterans Administration Hospital in Columbia, South Carolina. Europe has at least forty large cancer centers offering chronotherapy. Multiple randomized studies, especially in advanced cancers, have favored chronotherapy over routine infusions, so you may consider receiving treatment using this technique, especially if you have trouble with chemo side effects.¹⁰

Fractionated Dose Therapy

Traditionally, chemotherapy is given in a single large dose, often as high as a patient can tolerate. This sort of chemo is called bolus dosing. But a number of recent studies show that fractionated or continuous infusion, in which a drug is administered in small doses over the course of a day or several days, is better tolerated and possibly more effective. Although

additional clinical studies are needed to confirm this, the better tolerance might improve survival, just as it does with chronotherapy. Ask your oncologists if they have adopted this approach.

Amifostine

We once had a patient with non-small-cell lung carcinoma who came for care at the center but who could no longer receive a chemotherapy drug, cisplatin, that was making his tumor shrink: it was also causing his kidneys to fail. We put him on the full LOC [Life Over Cancer] program, as well as the conventional drug Ethyol (amifostine), which protects against the renal toxicity associated with cisplatin. Amifostine, which is given by injection, works because it is a potent antioxidant and thus can protect normal tissue from the damaging effects of free radicals, which is how radiation and some chemo drugs exert their cell-killing effects.¹¹ We proceeded with chemotherapy and Ethyol, and he had an excellent response. His kidney function also returned to near normal.

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