

Alternative Medicine

Immune System Revival in Cancer Patients

Technological advancements at the Aidan Clinic in Arizona are "rescuing and rehabbing" immune system cells in innovative ways that allow the patient's own natural defenses to recognize, attack and destroy cancer cells.

BY DR. DONNA SCHWONTKOWSKI

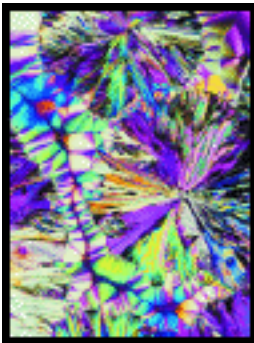
"Let me tell you what really convinced me that the immune system has a lot to do with cancer," relates Neil Riordan, M.S., P.A.-C., Founder and Director of Aidan, Inc. "There was a paper published in the Annals of the New York Academy of Sciences in 1993 by Dr. James McCoy. It was a study of women with breast cancer. They had 77 women enrolled who were about to undergo surgery. When the surgery was performed they took tumor tissue and co-cultured this tissue with the patient's own lymphocytes (white blood cells). In some of the women, the lymphocytes had no reaction to the tumor tissue, and in other women the lymphocytes were stimulated and proliferated. This was nothing but the women's own natural immune response. Then they followed these women for more than 12 years. At that time, 47% of those women who showed no immune response had died. But of those women who had had an immune reaction, 95% were still alive." (See graph of the study results, page 114.)

People develop cancer, says Riordan, because of "immune tolerance;" that is, their immune systems are tolerating these tumors or cancers to grow. "The whole idea is to break immune tolerance," Riordan says. "If you have a tumor, then your body's letting it be. Otherwise, it would have rid itself of the tumor a long time ago, before you could even feel it. And that immune tolerance is what we're all about. That's what we try to get rid of." Riordan finds that by rescuing and rehabbing the immune system cells with unique, advanced methods, the patient's immune tolerance transmutes into immune competence. This means that the patient's immune system recognizes, attacks and destroys tumors and cancer cells, without needing any chemotherapy or radiation, or just minimal doses, thus avoiding their destructive side effects.

RESCUE/REHAB TECHNIQUE #1:

Overall support: Vitamin C infusions

About three years ago, 59-year-old Linda B. couldn't even pick up a small box of dishwasher soap. Finally, doctors discovered ovarian cancer in her body. It was already in an advanced stage and had metastasized to her lungs. However, just last month, Linda helped unload a truck full of 40-pound sacks of food for Southwest Wildlife, where she rescues and rehabilitates Sonoran Desert animals.



An electron microscope photo showing the crystalline structure of ascorbic acid.

Linda attributes her recovery to the alternative medical choices she made during and after conventional treatments of surgery and chemotherapy, and to the nontoxic protocols she has followed after she came to the Aidan clinic when it opened in September of 1999. She is grateful not only to be alive, but also to have an increased quality of life.

"Every month I still come in and get my intravenous vitamin C (vitamin C IV). And around me are people who are getting better. When I was doing chemotherapy, nobody was getting better. Each person would look worse than they did the week before or the month before. And there was this great grimness and sadness and a feeling of hopelessness and no choices. With the naturopathic program I initially followed, the start-up of the Aidan Clinic and the development of medicines here, there are options today that did not exist for me in '98. People walking in the door today are very lucky."

The vitamin C IVs that Linda speaks of are part of the protocol that most patients at Aidan receive. Riordan believes strongly that vitamin C plays a crucial role in immune stimulation for cancer patients. He has been a leading researcher on the subject for more than a decade, and he and his colleagues have had several articles published in peer-reviewed medical journals. His latest study, "Cytotoxicity of ascorbate, lipoic acid, and other antioxidants in hollow fibre in vitro tumours," was published in the June 2001 issue of the British Journal of Cancer (Vol. 84, No. 11).

Problems of vitamin deficiency

"In some studies, up to 46% of cancer patients have scurvy or absolute lack of vitamin C," says Riordan. "The immune system can't function properly without it. Phagocytic cells (white blood cells that engulf cancer cells and other disease-causing organisms and substances) don't work well at all if there's not enough C. This is something that can actually be tested in the lab. When patients first arrive, the percentage of their phagocytes, which will gobble up foreign particles such as yeast, is very, very low. A normal finding is that between 40% and 70% of the cells will engulf the yeast. We've seen patients as low as 1% to 2%. Then, after a series of vitamin C IVs, they'll be in the normal range. The most dramatic case I have ever seen is a patient who had a 2% phagocytic index. After two weeks of therapy, she was at 99%."

Vitamin C is also essential for the production of collagen, the main constituent of our connective tissue. Riordan maintains that sufficient levels of vitamin C inhibit the spread of cancer throughout the body. "If you're low in vitamin C, then your immune system is not going to fight cancer as effectively. And col-

Vitamin C has also been found to induce apoptosis, or programmed cell death, in cancer cells. With the right dosage, it is toxic to tumor cells and can foster the resolution of metastases (secondary tumors from the spread of cancer cells from the primary tumor site). The reason for this is that large doses of vitamin C induce the build-up of hydrogen peroxide (H₂O₂) within cells. Normal cells contain the enzyme catalase, which safely breaks down the H₂O₂ into nontoxic byproducts. However, cancer cells are deficient in catalase, and within them the H₂O₂ builds up to lethal levels. The right dosage of vitamin C can easily be calculated by monitoring plasma/cell levels. When levels reach 400 mg/dcl (micrograms of ascorbic acid per deciliter, or about 1/10th quart of blood plasma), tumor cells will be killed.

Riordan and the Aidan Clinic's medical director, Daniel Rubin, N.D., have found that the amount of vitamin C needed for each patient varies between 25 and 150 grams. These amounts are generally impossible to take orally without experiencing diarrhea. They start each patient with 25 grams of vitamin C in an IV, then perform a test called a G6PD to see if the patient has sufficient enzymes to allow the



Left: Dr. Rubin spends time in the IV room most days answering questions that patients may have.

body to handle larger amounts of vitamin C without red blood cell damage. Although deficiency of this enzyme is uncommon, they test each patient to be extra cautious. The amount of vitamin C needed is ultimately dependent on the person's weight, height, body surface area and disease process. Those with a lot of solid tumors, for example, generally require a lot more vitamin C than those without.

The vitamin C/stress connection

The connection between stress and a deficiency of vitamin C has been well established in scientific literature. When the adrenal glands work overtime in times of stress, output of stress hormones is increased. Because these stress hormones require vitamin C for their synthesis, body stores may be used up in the process. Without replenishment, it is easy for levels to remain low, and as further stresses of life accumulate, the levels continue to plummet. Studies have found that 80% of cancer patients had a precipitating stressful period or event six to 18 months prior to the diagnosis, which further supports this theory and ties into the importance of vitamin C.

Cancer patients' bodies are too stressed to eliminate the cancer through the normal actions of white blood cells. For the immune cells to do this, they require high levels of vitamin C to engulf and digest the cancer cells. "This is apparent," says Riordan, "by the fact that lymphocytes store large amounts of vitamin C relative to the circulating (blood) plasma." Biochemically, cancer patients are under a lot of oxidative stress that occurs from cell damage, cell oxidation, and cell death. Vitamin C is the "sacrificial lamb" of oxidation and thus used up first.

RESCUE/REHAB TECHNIQUE #2:

Potentiate vitamin C: Work smarter not harder

Although vitamin C works well by itself, adding certain substances can make it work more efficiently with lower dosages. Riordan found that several nutrients--including lipoic acid, the bioflavonoid quercetin, grapeseed extract, vitamin K, and niacinamide and biotin (members of the vitamin B family)--significantly potentiate the healing effects of vitamin C. He created a natural oral supplement called IVC-Max? that includes the proper amounts of these nutrients to lower the dosage of vitamin C needed. Riordan conducted a study with human colon carcinoma cells, which compared the effects of vitamin C alone with vitamin C combined with lipoic acid. The dose of vitamin C required to kill 50% of the tumor cells was reduced from 700 mg/dl to 120 mg/dl when lipoic acid was added.

77 women with Stage 1-Stage 2 breast cancer were evaluated by the immune response to their own tumor after surgery. Of those who had an immune response to their tumor (their immune systems didn't tolerate the tumor), 95% were still alive after 12 years. Of those who did not respond (their immune systems tolerated the tumor), 53% were alive after 12 years.

James McCoy, Ph.D., et al. Assessment of Immunologic Competence and Host Reactivity Against Tumor Antigens in Breast Cancer Patients. Prognostic Value and Rationale of Immunotherapy Development. Annals of the New York Academy of Sciences, 340,1993

RESCUE/REHAB TECHNIQUE #3:

Cytokines: Establishing communication

All cells communicate with each other by sending chemical messages in the form of special proteins called cytokines. Under normal circumstances, when the body fights an infection, cytokines are released that stimulate immune activity. When the infection is dealt with, other cytokines are released that suppress the immune reaction. Cancer cells take advantage of this by producing and sending out suppressive cytokines to immobilize normal immune system cells, rendering them ineffective.

Two of these suppressive cytokines that prevent immune cells from doing their jobs are VEGF (vascular endothelial growth factor) and IL-10 (interleukin 10). IL-10 inhibits the proliferation of T-cells--lymphocytes that are the body's main weapon against cancer cells. VEGF inhibits the maturation of dendritic cells, which are critical in helping T-cells target cancer cells. Suppressive cytokines also inhibit the

production of other kinds of cytokines that would initiate a chain of immune responses. Therefore, one of Aidan Clinic's anti-cancer strategies is to counter cancer cells' cytokines with immune-stimulating cytokines, developed in their laboratory from the patient's own white blood cells.

To have an effective anti-tumor immune response in the body, two sequential events must occur. The first event is antigen presentation to the T-cells. An antigen is a protein on the surface of a cell. In the case of cancer, the antigens from the tumor must be incorporated and processed by dendritic cells.

Dendritic cells are by far the body's most efficient antigen-presenting cells. When immature, they engulf tumor cells, although their primary purpose is not to destroy cancer cells, but to incorporate their antigen information. However, this is only half of their job. Dendritic cells then need to mature, which means that they will change their shape to effectively present the antigen information on their surfaces. They then migrate to lymph nodes where T-cells are concentrated, and pass on this information to the T-cells. This is the main way that T-cells are alerted to a cancer problem, and receive the information that enables them to recognize the cancer cells.

Creating the "scent" for the "bloodhounds"

The Aidan Clinic's unique way of initiating an effective anti-tumor immune response involves, first of all, using a piece of the tumor itself to activate the immune system. The antigens on the surface of the patient's own tumor are removed from the tumor and isolated. This pure antigenic material is then utilized to create two different vaccines. The first vaccine is injected under the skin. The idea is to elicit a localized immune response, as described above, in which the tumor antigen is picked up by the dendritic cells, which then migrate into the lymph system and present the antigen to the T-cells. This is akin to giving bloodhounds the scent of an escaped prisoner. The vaccines are repeated over a period of about six weeks. By then, the message has been passed on and an immune response mounted.

To create the second vaccine, monocytes from the patient's blood are cultured, then combined with the antigen. This mixture is then stimulated to create a stress response.

Whenever there is stress in the body, proteins called heat shock proteins (HSP) are produced. These proteins protect the body by activating the immune system and alerting the body that damaged tissue needs to be removed. Damaged tissue that stays in the body has a high likelihood of becoming infected, so the immune system becomes highly sensitized towards it, and wants to do everything it can to remove it immediately. The heat shock proteins act as "chaperone" molecules, handing the antigen "scent" to the dendritic cells, and activating the dendritic cells to hand off this information to the T-cell "bloodhounds."

This process produces a number of immune-stimulating cytokines. Interleukin 1 (IL-1) and Tumor Necrosis Factors enhance the antigen presentation process. The vaccine also contains other cytokines that improve dendritic cell maturation and T-cell function. This vaccine is called in-vivo (within the body) dendritic cell therapy. There are presently dozens of public and private institutions experimenting with dendritic cell therapy, but none like Aidan's. The main difference is that these organizations are creating standardized antigens, instead of using tumor samples from each individual patient.

"Standard medicine or bio-tech medicine is all about defining antigens that can be patented and owned, then licensed and sold," says Riordan. "Their motivation is not effectiveness but economic gain. And that's not what we're about. We're about using the patient's own antigens, because that way we get a better result."

RESCUE/REHAB TECHNIQUE #4:

Build your army with those who have the message

After antigen presentation is established, the next event needed for an effective anti-tumor response is mobilizing an army of T-cells to actually attack the cancer. Aidan staff believes that if they address the first event successfully, the T-cells will proliferate, with each new cell programmed to recognize and attack the cancer. Every Aidan patient receives tests to make sure that the numbers are increasing and

the antigen is successfully presented to the T-cells.

The Aidan Clinic utilizes a third vaccine, again created from the patient's own blood, which directly builds the army. This one is made from lymphocytes, and contains other cytokines, such as IL-2 and gamma-interferon, that stimulate T-cell production. Riordan and Rubin have found that a natural cytokine mixture, like the one normally found in the body, produces stronger effects than using just one cytokine. Riordan determined that they were able to reduce the dose of IL-2 by 5,000-fold when it was used in conjunction with other cytokines produced by the white blood cells.

RESCUE/REHAB TECHNIQUE #5:

Anti-angiogenesis: Starve the enemy

Militarily, starving the enemy makes them weak and easier to overcome. Likewise, the Aidan Clinic has found that starved tumors become weak, begin to shrink and can then be overcome by the body's own immune system cells.

Before founding Aidan, Riordan worked at the Center for the Improvement of Human Functioning, in Wichita, Kansas. One day he encountered a survivor of ovarian cancer who told him that the only reason she was alive was that she was taking a daily tincture of an herb that a native American shaman had given her.

That herb was a common weed found worldwide called bindweed; its Latin name, *Convolvulus arvensis*. Intrigued by this case, Riordan and his colleagues gathered up bindweed, which grew rampant around the Center, and tested it against cultured tumor cells: It showed no toxic effects on the cells at all. Nor, in a different experiment, did it seem to stimulate immune activity. Eventually, however, they tested it for anti-angiogenesis qualities-- the ability to block the formation of new blood vessels that feed a tumor--and found it extremely potent. They determined that the active ingredients in the herb were a group of proteoglycan molecules (PGM). This substance has since been tested using standard laboratory assays and has been found to halt new blood vessel growth and formation between 18% and 73%, depending on dosages.

"We did safety trials on PGM and found that, taken orally, it's perfectly safe," Riordan says. "We tested it at levels up to 20,000 mg per kilogram, with no toxicity. In animal trials we found it inhibited tumor growth in melanoma, lung carcinoma and sarcoma models." Riordan created an encapsulated product, C-Statins®, that contains PGM.

Angiogenesis inhibitors help break immune tolerance. When they choke off the blood supply to the tumors, the result is a lot of dead and dying cells. These are more easily recognized as targets by macrophages--large monocytes that engulf cancer cells, "digest" them, and, like dendritic cells, present antigenic material on their surfaces, which they can hand off to the T-cells. The effects of angiogenesis inhibitors are maximized with the addition of Aidan's immune-stimulating vaccines.

Although a clinical trial has not yet been performed, results with cancer patients have been excellent. For example, one 57-year-old woman with breast cancer that had metastasized to her lung, brain and bones had been on chemotherapy for four months with no change in her clinical status. Two months after PGM was added to her treatment, her brain lesions were gone and the lung metastases had decreased by one-half.

Another woman, a 62-year-old intensive care unit nurse who was diagnosed with pancreatic cancer in May, 2000, says PGM is a "Godsend." Her cancer had spread to her liver and she was given no more than three months to live. She declined chemotherapy and radiation based on her experiences as a nurse, and took the oral supplements of PGM and another immune stimulant called MPGC, which Riordan had developed (discussed below). By August, 2000, she could feel her liver tumors had shrunk down to the level of her belly button. After eight weeks of taking PGM, her liver had receded and could no longer be felt. Her physician commented that she was a "walking miracle."

In June, 1998, a 52-year-old male patient was diagnosed with Stage IV colon cancer. After chemotherapy from August, 1998 to January, 1999, another mass appeared near the patient's spine. Additional chemotherapy cleared the new mass but in August, 1999, another one had grown to the size of 7 x 5 centimeters (about 2.75 x 2.0 inches). Alternative treatments, including nutritional IVs, were added to his treatment protocol, but still the mass would not resolve. PGM and MPGC were then added. Approximately nine weeks later a CT scan showed no evidence of disease.

PGM has been an important part of the treatment protocol for Ron Lee, 65 years old, who had been diagnosed with non-Hodgkin's lymphoma 20 years ago. A serious diet change and treatments at other clinics caused remission for about 15 years, but then his lymph nodes began enlarging. "When my lymph nodes would get too big, I'd get a shot of Australian frozen shark cartilage, and it would knock it down--until about two years ago. Then one tumor started growing that wasn't touched by the cartilage. When I came in to see Dr. Rubin, the tumor had taken up my whole jaw. But the tumor's almost all gone now, smaller than a pea, after 10 weeks of treatment. So this (treatment) has been working very well for me. Also, a byproduct of it is that my skin cancer is going away."

RESCUE/REHAB TECHNIQUE #6:

Imm-Kine®?: Light up the battlefield

Physiology is full of examples where recognition of even one chemical is the key for a cascade of immunological and other reactions to occur. At the Aidan Clinic, a unique extract prepared from the bacteria used in the production of sourdough bread, *Lactobacillus fermentum*, uses this same principle to initiate various immune responses simultaneously.

Riordan and his colleagues found that an extract of cell walls of that bacterium had certain characteristics that strongly stimulate white blood cells. The extract contains MPGC (muramyl polysaccharide-glycan complex). Early research showed that when MPGC was injected in the abdomen over a 14-day period, that there was a 75% inhibition of tumor growth. (Riordan also found that MPGC was beneficial not only for patients with cancer, but seemed to improve the condition of those with chronic fatigue syndrome and fibromyalgia.)

To MPGC, he added a derivative of mushroom cell walls--beta 1,3 glucan, a well-known non-specific immune stimulator--to create a product he named Imm-Kine®. This is an oral product that, once it is ingested, is engulfed by macrophages (and dendritic cells), stimulating them in a number of ways: 1) it increases overall macrophage activity, including their proliferation, mobility and the production of immune-stimulating cytokines; 2) it increases the ability of macrophages to recognize virally infected cells, including cells infected with cancer viruses; and 3) it specifically sensitizes macrophages to muramic acid and phosphatidylserine, two "recognition flags" found on tumor cells. Imm-Kine®? initiates a wide range of immune reactions, including the destruction of tumor cells, virally infected cells, fungal cells, bacterial cells and old tired red blood cells. In effect, the entire immune system is upgraded quickly.

The Aidan Program

The Aidan Clinic developed their protocols as a 12-week program: the first three weeks as an outpatient at the clinic, and the following nine weeks at home. While they are at the clinic, patients receive physical exams and review of scans and medical records; lab tests from tumor, blood and urine samples; potentiated vitamin C IVs; immune therapy; IVC-Max®, Imm-Kine®, C-Statin® and prescribed supplements; and other medical, laboratory and educational services as needed. Supplements, immune therapies and instructions are sent home with patients for the remainder of the 3 months along with referrals to practitioners in their area who can continue vitamin C IVs.

The patients return after three months and then, if necessary, after six months, for an updated evaluation and to have their maintenance immune program adjusted accordingly. The at-home treatment consists of vaccine injections once a week for three weeks, and then every other week for six weeks, as well as prescribed supplementation. Because all of the treatments at Aidan Clinic are individualized to each person's needs, potential patients should call the clinic for personalized cost information.

RESCUE/REHAB TECHNIQUE #7:

Re-differentiation and apoptosis: Getting the enemy to change sides

Cancer cells are generally considered to originate from normal cells that have undergone genetic mutation. This causes them to behave differently from normal cells in two main ways. First, when normal cells become damaged, genes within them are activated that kill the cell; the cell "commits suicide." This is called apoptosis, or programmed cell death. Second, when normal cells divide, they acquire the functions of the type of tissue they originated from. In other words, healthy liver cells only divide to maintain normal liver size and function--and when they do divide, the new liver cells know to stay in the liver and perform specific liver functions. But cancer cells are undifferentiated; they do not perform the normal functions that they were originally programmed to do, and they have the tendency to proliferate uncontrollably and spread (metastasize).

However, certain natural substances have been found that, instead of destroying cancer cells, return them to states of normalcy. The Aidan Clinic employs therapeutic doses of the bioflavonoid quercetin, for example, which has been shown to induce apoptosis in cancer cells.

Aidan also employs a variety of nutrients that, taken together, have proven to encourage re-differentiation. These substances include vitamin A, vitamin D, Coenzyme Q10, glutathione, and sulfur-based amino acids. Properly administered, these nutrients coax rebellious cancer cells in the body to start marching back to their original nature. Dr. Rubin believes that patients also need to take a full range of synergistic vitamins to help rehabilitate their cancer cells, and bring them back to normal.

Other Treatments at the Aidan Clinic

A maxim of alternative medicine is to not just suppress symptoms but to treat the whole patient. The seven "Rescue/ Rehab" techniques described above are only part of the entire Aidan program. Other parts of the Aidan program include detoxification protocols; adjunct supplementation; stress management; nutritional education; lifestyle modification, and addressing emotional conflicts.

Sometimes patients are advised to resolve dental issues, such as having mercury amalgams removed. Aidan also has relationships with oncologists, surgeons and radiologists, who can use chemotherapy, surgery or radiotherapy in cases where this is deemed advisable. The three pillars of conventional cancer treatment--surgery, chemotherapy and radiation--do nothing but destroy tumors. They do nothing to address the root cause of the disease--the reason why the tumors occurred in the first place. There is, then, always the fear of cancer recurrence. Aidan's comprehensive immunotherapies are aimed at reestablishing a condition of immune competence, in which the body's own natural defenses will not let cancer exist. The techniques that Aidan employs "rescue-and-rehab" patient's immune systems--and their lives and spirits as well. **AM**

Contact:

Dr. Donna Schwontkowski is a chiropractic physician with a masters in both nutrition and herbology. She is the editor of *Health & Fitness* magazine, and has also hosted radio and television shows on health.

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The clinic also periodically hosts intensive training seminars for doctors who wish to learn Aidan's protocols.

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