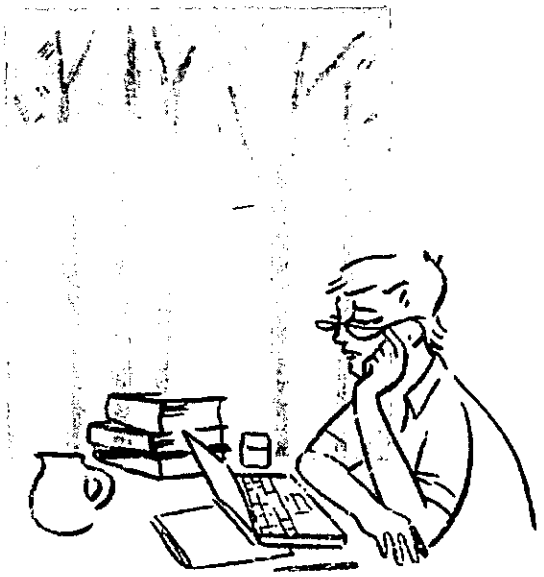
USC Health Magazine

Reclaimed Living

cancer survivors seek ways beyond drugs to fight cancer recurrence and move on with their lives.



by Alicia Di Rado

Cancer comes with a frenzy of activity: surgery, chemotherapy, radiation therapy, appointments, phone calls, test results.

Then, just as suddenly, it is over. Done. No more treatments. So now what?

With the advent of early detection and advanced treatments, more cancer patients are now cancer survivors. Today, 9.5 million people in America are living with or beyond the diagnosis of cancer, and fewer than half of all people with cancer will die of the disease.

Instead of facing the minute-to-minute worries over nausea or surgery, cancer survivors move on—but with the lingering possibility that their cancer might come back. So they search the Internet, clip newspaper articles and talk to doctors for ways to improve the odds.

"Everyone wants the magic pill to keep cancer away," says oncologist David Quinn, M.D., assistant professor of clinical medicine at the Keck School of Medicine of USC. Unfortunately, little is known for certain about how to keep cancer from recurring, and each type of cancer behaves differently. But researchers have begun delving into the field, seeking answers.

"Psychosocial research after cancer was once considered soft science," says Leslie Bernstein, Ph.D., the AFLAC Chair in Cancer Research and professor of preventive medicine, who tackles after-cancer, quality-of-life issues in her research. "But survivorship issues started coming to the fore six to seven years ago."

The answers may not be here yet—but they are coming.

Evaluating profiles

Keeping cancer at bay might be approached on two fronts: the success of the initial treatment, and lifestyle factors after therapy.

Many patients likely have vaulted over their cancers successfully because anti-cancer therapies have improved and because cancers are being detected earlier.

But oncologists today also have ever-expanding profiles of each patient's cancer—based on tumor genetics, size, behavior and other factors—that guide treatment. These indicators, funneled into scales called nomograms, can tip oncologists off to a patient whose cancer is likely to return, suggesting the patient get additional

therapies, aggressive surgery or follow-up radiation beyond the norm.

"Each case is like a petri dish," says Keck School breast surgeon Gail Lebovic, M.D., associate professor of medicine. "You take a bunch of variables for each patient and use them to come up with a diagnostic prediction."

Oncologists also see benefits from maintenance treatments for patients after they finish chemotherapy, radiation or surgery. The drug Tamoxifen is an example.

Tamoxifen, which women may take daily for as long as five years after finishing breast cancer therapy, can protect a significant proportion of women from breast cancer's return. New drugs called aromatase inhibitors might be even more successful at deterring breast cancer recurrence, though oncologists are still evaluating the best ways to use them.

At USC/Norris Comprehensive Cancer Center, meanwhile, high-risk prostate cancer patients are participating in a clinical trial testing another long-term therapy. The trial evaluates whether suppressing male sex hormones and using an intravenous drug called mitoxantrone after prostate surgery can keep cancer from coming back. Nicknamed the "Blue Juice Club" for the color of their chemotherapy, these patients stay on the potential maintenance medications for several years.

Researchers are even studying common anti-inflammatory drugs such as ibuprofen, celecoxib and aspirin to prevent recurrence of colon polyps and superficial bladder cancer after initial treatment. Others are investigating vaccines to boost the immune system to fight any potentially lurking cancer cells in a variety of different cancers (see "Get Stoked" on page 12), even when patients are seemingly cancer-free after treatment.

Vitamin spree

Beyond drugs, cancer survivors clamor to know what they can do to fight cancer recurrence. Some recommendations are clear-cut—quitting smoking and reducing alcohol consumption—but the American Cancer Society recently brought together physicians, nutritionists, nurses and others to publish a guide of foods, vitamins and supplements to use after cancer treatment, as well as issues such as exercise and weight management. (The guide is available at http://Caonline.AmCancerSoc.org.)

The American Cancer Society panel suggests that following standard dietary recommendations for overall good health, including getting five servings of fruit and vegetables a day, is a good start for cancer survivors. High intake of vegetables is linked to a lower risk of developing colorectal, lung, oral, esophageal and stomach cancers in the first place. Consuming a wide variety of vegetables ranging from vivid greens to deep oranges is especially recommended, since each vegetable family is jam-packed with a differing

spectrum of important nutrients.

Foods, and the vitamins, minerals and other substances found within them, form a treasure trove for research into recurrence. But while researchers are carefully putting the often-contradictory reports about vitamins' benefits to the test, cancer survivors are taking matters into their own hands: Studies show that between 25 and 80 percent of cancer survivors use dietary supplements.

That is no surprise to USC/Norris' Ann S. Hamilton, Ph.D., assistant professor of preventive medicine at the Keck School, who has been monitoring 3,500 survivors of prostate cancer in several major cities through the Prostate Cancer Outcomes Study, or PCOS. The National Cancer Institute-funded study is the first large, systematic evaluation of prostate cancer survivors' quality of life after treatment.

Five years after treatment, Hamilton has found that more than a third of the men in PCOS—especially those who had more advanced cancer when treated—use some sort of supplement, vitamin pill or special diet. Most often, that includes taking vitamin E.

Though research is still inconclusive on its benefits for fighting cancer, some caregivers suggest the antioxidant vitamin E for survivors of numerous cancers. Antioxidants are thought to protect cells from the damaging effects of free radicals, which are byproducts of the body's metabolism. Quinn sometimes suggests patients take 400 international units of vitamin E daily, which "might aid in recovery of normal cells from chemotherapy and radiation," especially if patients do not get enough vitamin E through food. Avocado and olive oil are good natural sources.

Researchers at USC/Norris and numerous other centers are conducting a clinical trial to test whether vitamin E can protect men against prostate cancer in the first place. The same prostate study is looking at possible benefits of the mineral selenium, found in foods such as brazil nuts, tuna and chicken. Some studies have shown selenium might help protect against colorectal cancer, while USC/Norris investigators are conducting a clinical trial to see if it can help keep non-small-cell lung cancer tumors from coming back after treatment.

Calcium might help, too. USC/Norris' Robert W. Haile, Dr.P.H., professor and director of the Genetic Epidemiology Program, has been studying dietary ingredients to see which might ward off colorectal cancer. Haile and his colleagues found that taking a daily calcium supplement—one containing about 3,000 milligrams of calcium carbonate, the equivalent of 1,200 milligrams of elemental calcium—reduced the risk of recurrence of colon polyps by 15 percent. Folate, a B vitamin, also might reduce the risk of colorectal polyps and cancer—though researchers warn that more detailed studies need to be done before patients pin their hopes on any vitamin or mineral, especially when taken as a supplement instead of in food.

Hamilton and her colleagues hope to see if any links develop between certain supplements or foods and prostate cancer recurrence rates in PCOS participants. In addition to vitamin E, they also asked about vitamins C and D, selenium and zinc, as well as supplements such as beta carotene, shark cartilage and saw palmetto. Also surveyed: Whether survivors now eat more tomatoes (a source of lycopene, a potential cancer-fighter), garlic or soy products, or if they have switched to a low-fat diet.

And Hamilton is not alone at the Keck School and USC/Norris in trying to uncover potential links between lifestyle and survival. The California Breast Cancer Research Program is supporting a new study by preventive medicine researcher Anna H. Wu, Ph.D., that examines consumption of soy and tea among 1,200 Asian-American breast cancer survivors in Los Angeles. Wu hopes to better understand whether soy and tea consumption hinders or boosts the effectiveness of tamoxifen in these women, and whether other lifestyle factors before or after diagnosis affect recurrence.

Exercising judgment

Beyond pills and foods, researchers are trying to find out if a walk a day, or just dropping a few pounds, can help keep cancer away.

Preventive medicine's Bernstein is an investigator in the Healthy Eating and Lifestyle study, or HEAL, which is examining diet, exercise and weight in more than 1,000 premenopausal and postmenopausal breast cancer survivors. Five years after their diagnoses and treatments, HEAL participants are telling Bernstein about how their lives have changed since cancer.

Specifically, Bernstein asks about exercise after diagnosis, weight gain or loss, pregnancies, menstruation patterns, job activity, alternative medications and more.

In addition to understanding life after cancer, "we want to see if aspects of lifestyle can predict risk of recurrence," she says. Already, another unrelated study showed that women who exercised even moderately after breast cancer had a lower chance of dying from the disease. And studies hint that women who are obese tend to have recurrence more often, Bernstein notes.

Such research could give valuable motivation and guidance to women moving beyond cancer, since studies show that survivors tend to reduce their physical activity through treatment and afterward. HEAL seeks to find out if breast cancer patients eventually resume pre-cancer activity levels, and if activity offers benefits.

At the very least, one of physical activity's benefits is likely to be reduced stress and improved quality of life, a characteristic shared by some complementary therapies such as meditation.

USC/Norris' Quinn often fields questions from patients about complementary therapies, from acupuncture to Chinese medicine. He encourages patients to tell him what they are taking or doing, so he can make sure herbal pills or other remedies do not interact with medications or contain dangerous ingredients. No scientific trials have found firm cancer-fighting benefits to alternative therapies, but if the therapies do not harm—and help patients move ahead with confidence—he remains open to their use.

"When people finish with therapy, I talk to them about reclaiming their lives," Quinn says. "They should not be governed by medical obsession. They need to go live their lives."

The National Cancer Institute's Office for Cancer Survivorship offers a variety of online resources to patients who are living beyond cancer on its Web site: http://dccps.nci.nih.gov/ocs/resources.html.

Get Stoked

Oncologists at USC/Norris Comprehensive Cancer Center are testing investigational vaccines aimed at stoking the immune system to fight cancer cells that might remain in patients after they finish their standard treatment.

To battle colon cancer, oncologists are offering a trial of the EP-2101 vaccine, for example.

EP-2101 is a vaccine that exposes the body's immune cells to small bits of proteins that are found in abundance in cancer cells. Researchers hope these short proteins, called peptides, will alert immune cells to recognize the cancer cells as foreign invaders—and eliminate them.

"This vaccine uses a family of peptides important to a variety of cancers, including colon cancer," explains medical oncologist Heinz-Josef Lenz, M.D., associate professor of medicine at the Keck School of Medicine and principal investigator for the USC/Norris trial site.

The trial is open to patients who have undergone successful surgery for stage III colon cancer, which means they were diagnosed with a single colon tumor, with signs of some cancer cells in nearby lymph nodes but no cancer spread beyond that. Such cancers are usually removed through surgery and followed up with chemotherapy.

In another vaccine for kidney cancer, specialists "take a patient's own tumor tissue and create a unique vaccine from it," says oncologist David Quinn, M.D., assistant professor of clinical medicine at the Keck School and trial principal investigator at USC/Norris. Called Oncophage, the vaccine exposes the body's immune cells to a special protein and its associated peptides—substances custom-created from each individual's tumor. Researchers hope these proteins will stimulate the immune system.

At USC/Norris, researchers are testing the vaccine in a phase III trial with patients who are having surgery to remove a locally advanced tumor, but have no cancer spread and have not had chemotherapy or radiation. These patients are at high risk for the cancer's recurrence.

For more information about clinical trials at USC/Norris Comprehensive Cancer Center, call 1-800-USC-CARE (1-800-872-2273) and ask for the Office of Clinical Trials at USC/Norris, or call the office directly at (323)