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**REPORT TO
PHYSICIANS**

**OCTOBER 1998
VOL. 43, NO. 10**

THE UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

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MD Anderson Oncology

Endometrial Cancer: Prompt Responses Yield High Survival Rates



[Image Redacted]

by Beth W. Allen

Endometrial cancer is a standout among the three most common gynecologic cancers. Alone it affects annually as many women as do ovarian and cervical cancer combined. But unlike those cancers, it claims far fewer of the lives it touches.

In fact, one- and five-year survival rates range above 90%, largely because early detection and diagnosis are likely. Easily recognizable symptoms, quick response to symptoms by patients, and quick response by gynecologists and family physicians to patients' complaints explain in part why two-thirds to three-quarters of disease at detection is both low stage and low grade.

Thomas W. Burke, professor of gynecologic oncology and director of the Gynecologic Oncology Center at The University of Texas M. D. Anderson Cancer Center, points to postmenopausal bleeding as an important factor.

"There are some symptoms that women tend to ignore and some they seek help for. Postmenopausal bleeding is usually one that prompts response," he said.

"Not only do women recognize it as being abnormal and requiring immediate evaluation," he said, "but so do their doctors. When someone comes in and says she has postmenopausal bleeding, most family doctors and general OB-GYNs move directly to a biopsy.

"So there's usually no delay on the patient side, no delay on the diagnosis side, and as a result most women have early disease at diagnosis," he said.

(Continued on next page)

Endometrial Cancer

(Continued from page 1)

"That is a very fortunate set of circumstances for women who fit that pattern," Dr. Burke said.

For the patients who do not fit that pattern—those who have grade 2 or 3 less differentiated cancers or any of the variant cell types (papillary serous or clear cell cancers, for example)—more extensive staging evaluation is required at surgery. These cases represent about one-third of all patients.

"For patients who have grade 2 or grade 3 less differentiated cancers or any of the variant cell types who are at risk for spread of disease outside the uterus, the usual factors, such as depth of invasion, tend not to be predictive," Dr. Burke said. "It's the histologic diagnosis that is important."

Patients whose histology indicates low risk but whose disease has invaded the wall of the uterus or extended into the cervix also require more extensive staging procedures. Risk of recurrence and need of postoperative treatment are also determined from findings at surgery.

In these patients, Dr. Burke says, "there is a significant probability that surgical staging can detect microscopic tumor elsewhere" and that the patient will need a very well laid plan of treatment after surgery. Postoperative therapy is typically radiation or chemotherapy, according to Dr. Burke, who said "how much and what kind is really individualized." Physicians at M. D. Anderson choose adjuvant therapy from institutional protocols and others that are part of national initiatives of the Gynecology Oncology Group or the Radiation Therapy Oncology Group.

"If the patient has tumor outside of the uterus," Dr. Burke said, "the decision to take additional treatment beyond surgery is a relatively easy one. We choose radiation, chemotherapy, or hormonal therapy, depending on the features of the tumor and the location of the spread. The really difficult call is the patient who has no tumor detected outside the uterus but has high-risk features."

Dr. Burke says these are the types of cases that are resolved in multidisciplinary planning conferences, where many physicians consult on single cases. "These are the cases that generate a lot of discussion," he says. After one or more plans are formulated, options are presented to the patient, and a choice is made in patient-physician consultation.

Dr. Burke says that total abdominal hysterectomy and oophorectomy with pelvic and para-aortic node sampling for endometrial cancer is the most commonly performed gynecologic oncology procedure, and it was the first care path to be plotted by M. D. Anderson's Practice Outcomes Program.

With implementation of the path, median values of length of hospital stay fell from six to four days and of total hospital costs fell 29%. Other cost savings realized included decreases in laboratory costs of 74% and medication costs of 20%.

Postoperative follow-up has also been studied by the gynecologic oncology group at M. D. Anderson and resulted in a five-year surveillance follow-up schedule that can be individualized by histologic diagnosis.

Patients who require special monitoring other than those with variant cell types include those who have had cancer of the breast, ovary, and colon. "Women who have had one of these four cancers are at a statistically higher risk of developing one of the others," he said.

Among those women who take tamoxifen to prevent breast cancer recurrence are of special interest. However, incidence is low—only one or two per thousand women who take tamoxifen are diagnosed with endometrial cancer—according to Dr. Burke, and risk has been related to the length of time a patient is on the drug.

"The current recommendation is that women who are candidates for tamoxifen therapy should take it only for about five years," he said, "and then discontinue it if they are free of breast cancer." •

FOR MORE INFORMATION about endometrial cancer treatment, contact Dr. Burke at (713) 792-2772.

Endometrial Cancer Variant Cell Types: Two Cases

"This was a shock to me," said the 64-year-old mother of four grown children undergoing her third week of postoperative adjuvant radiotherapy (see **CASE 1**). With no record of cancer in her medical history or that of her family, learning she had endometrial cancer was a surprise. "We have diabetes and heart disease in my family, but not cancer," she said. The woman, who lives in Houston, was diagnosed last summer with mixed clear cell and uterine papillary serous carcinoma of the endometrium, variant cell types that along with invasion into the cervix and a right pelvic lymph node made her a candidate for whole abdominal adjuvant postoperative radiation therapy.

About a month earlier, an 81-year-old Northeast Texas great-grandmother, who had had a mastectomy four years earlier and had been taking tamoxifen, chose M. D. Anderson from the list of options her

Trials Offer Treatment Options for Patients with Endometrial Cancer

Clinical trials currently in progress at The University of Texas M. D. Anderson Cancer Center include the following in endometrial cancer.

- A randomized study of doxorubicin plus cisplatin versus doxorubicin plus 24-hour paclitaxel plus granulocyte colony-stimulating factor in patients with primary stage III and IV or recurrent endometrial carcinoma (GOG 163). Physician: Thomas W. Burke, M.D.

This study is conducted by the Gynecologic Oncology Group. Patients undergo treatment with either doxorubi-

Case Studies of Patients with Variant Cell Types

| CHARACTERISTIC | CASE 1 | CASE 2 |
|--|--|---|
| Preoperative signs and symptoms | Vaginal bleeding for three to four years | Postmenopausal bleeding for one year; history of tamoxifen use |
| Preoperative diagnosis | Grade 2-3 adenocarcinoma of endometrium | Atypical cells suspicious for cancer |
| Operation | Total abdominal hysterectomy with bilateral salpingo-oophorectomy; biopsies of lymph nodes and omentum; washings; removal of a right portal cyst | Total abdominal hysterectomy with bilateral salpingo-oophorectomy; omental biopsies; washings |
| Postoperative diagnosis | Mixed clear cell and uterine papillary serous carcinoma of the endometrium | Uterine papillary serous adenocarcinoma |
| Pathology report | Mixed clear cell and uterine papillary serous carcinoma of endometrium involving cervix and right pelvic lymph node | Uterine papillary serous carcinoma with <1.0 mm invasion |
| Complications | Transfusion of 1 unit of packed red blood cells | None |
| Length of hospital stay | Seven days | Three days |
| Postoperative therapy | Whole abdominal radiation therapy | No further therapy; discontinue tamoxifen |

gynecologist provided after he found atypical cells at curettage (**CASE 2**). J. Taylor Wharton, M.D., professor of gynecologic oncology and special assistant to the president for patient affairs, became her physician. She describes him as "wonderful."

After the surgical pathology report indicated she had uterine papillary serous carcinoma with less than 1.0 mm invasion, she said Dr. Wharton explained her risks and her options for postoperative therapy. Apart from the tumor found by the pathologist, she was in "perfect health," the patient recalls his saying. In consultation, they decided to pursue no further therapy. Tamoxifen was discontinued.

These rare cases of variant cell types make up only about 5% of all cases, according to Dr. Thomas W. Burke, director of the Gynecologic Oncology Center. "Those in the high-risk group—those with grade 2 or 3 disease—and those with the variant cell types are patients who significantly benefit from complete surgical staging, which would detect microscopic tumor, and those who usually need a more sophisticated plan of treatment after surgery," he said. ●

PROTOCOLS

cin plus cisplatin or doxorubicin plus 24-hour paclitaxel (Taxol) with granulocyte colony-stimulating factor. Up to seven three-week treatment courses will be given over 21 weeks. Patients must have measurable primary stage 3 or 4 endometrial carcinoma with little chance of cure by radiotherapy or surgery alone. They must not be taking hormones or biological agents at the time of the study.

surgery. They must have undergone surgery no more than six to eight weeks before radiation treatment. They must also have no known metastatic disease outside the pelvis. Radiation will be administered to the pelvis Monday through Friday for five weeks. Patients will also receive cisplatin during this time. Within two weeks after the last radiation treatment, radiation will be administered within the vagina over several hours. Participants will receive both cisplatin and paclitaxel within two weeks after the radiation boost.

- A phase II study of adjuvant preoperative irradiation combined with cisplatin/Taxol chemotherapy following total abdominal hysterectomy and bilateral salpingo-oophorectomy for patients with high-risk endometrial cancer (RTOG97-08). *Physician: Thomas W. Burke, M.D.*
Participants in this study will undergo radiation therapy in combination with the drugs cisplatin and paclitaxel after

- A phase II trial of Taxol in patients with advanced primary or recurrent uterine papillary serous carcinoma (GYN 93-006). *Physician: Thomas W. Burke, M.D.*
Treatment with paclitaxel is planned for women who have histologically confirmed advanced or recurrent

papillary serous carcinoma of the uterus. Having had prior chemotherapy makes a patient ineligible, but enrollment is not jeopardized by prior surgery or radiotherapy. Zubrod performance status must be ≤ 2 , and bone marrow, renal function, and hepatic function must be adequate as indicated by blood and other laboratory standards established specifically for participation.

FOR MORE INFORMATION about these clinical trials, physicians or patients should call the M. D. Anderson Information Line. Those within the United States, call (800) 392-1611; those in Houston or outside the United States, call (713) 792-6161. Visit the M. D. Anderson Cancer Center clinical trials Web site at <http://www.clinicaltrials.org> for a more complete listing of treatment research protocols.

Gene Therapy for Brain Tumors Moves From Laboratory to Clinic

by Beth Notzon and Beth W. Allen

Rarely does a physician have the chance to shepherd his own research from laboratory bench to multi-institutional clinical study, but Dr. W. K. Alfred Yung is doing just that.

His subject: glioblastoma multiforme, a deadly, aggressive, persistent tumor that without metastasizing usually ends lives within less than a year of diagnosis.

"Glioblastoma multiforme has the ability to walk all over the brain," said Dr. Yung, a cochairman of the study and deputy chairman of the Department of Neuro-Oncology at The University of Texas M. D. Anderson Cancer Center. Department of Neurosurgery Assistant Professor Frederick Lang, M. D., is cochairing the study.

"It is very invasive. It does not metastasize. But it keeps coming back and coming back. It will infiltrate an entire brain," he said. As a result, patients experience paralysis, seizures, severe headaches, personality disorders, and vomiting.

Cancer of the brain is ranked ninth in the list of most deadly cancers in women and is expected to be responsible for 6,000 deaths in the United States this year, according to the American Cancer Society. About 60% of all primary brain tumors are glioblastoma multiforme, classified by some as a stage IV astrocytoma. In middle-aged adults, it is the most common primary brain tumor.

Because this tumor tends to embed itself throughout the brain, surgery can rarely be curative, and because it has the greatest mix of

cell types of all brain tumors, chemotherapy may prove effective against some cell types but not others.

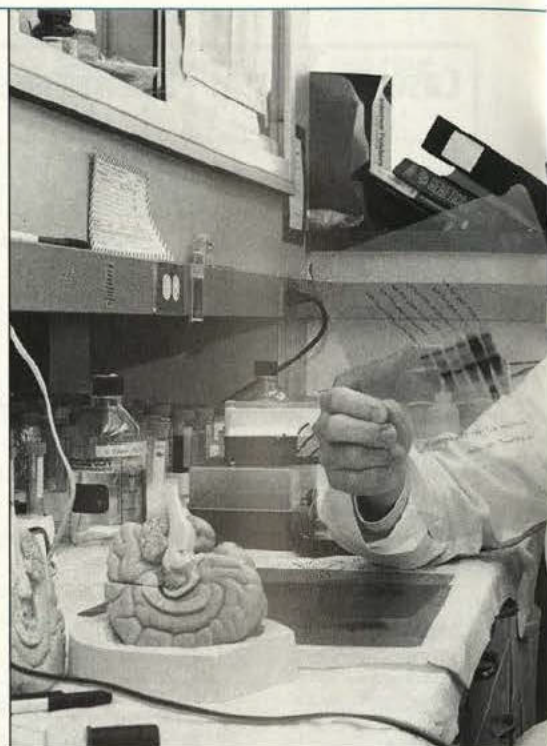
"There is nothing we can do so far that can change the course of the disease, short of radiation therapy," said Dr. Yung, who adds that the risk of high-dose radiotherapy puts a limit on its application. Conventional therapy's failure to halt the disease and patients' short survival rate following recurrence prompted him to try gene transfer therapy.

To stop this tumor in laboratory mice and human cell lines, Dr. Yung and his colleagues have since 1993 tried a genetic approach. They found that inserting the normal *p53* gene into glioma cells resulted in tumor cell death. The researchers rely on an adenoviral vector to carry the normal gene to the cells, where the normal gene replaces the abnormal one, restoring normal gene function and thereby inducing programmed cell death. Peter A. Steck, Ph.D., Mark Pershouse, Ph.D., and others collaborated with Dr. Yung in the laboratory.

"The new clinical study is basically a phase I study," Dr. Yung explained, "with the major goal of answering one question: When we inject this virus into the tumor—into the brain—will we see an acceptable toxicity? As a byproduct, we will be able to see whether there is any benefit from this therapy."

Studies in patients were expected to get under way mid-November with members of the North American Brain Tumor Consortium and the New Approaches to Brain Tumor Therapy Central Nervous System Consortium. The National Cancer Institute and RPR Gencell, a biotechnology company, will fund the study.

Despite the excitement over gene therapy, Dr. Yung remains cautious. "Gene therapy should be viewed as a natural development as we get to



Professor W. K. Alfred Yung studies a Northern blot analysis of epidermal growth factor receptor levels in different brain tumor cell lines after genetic manipulation. Dr. Yung and colleagues have been studying gene transfer in brain tumor experiments since 1993.

know more and more of the genetic makeup of cancer." He is quick to remind a listener that many questions must be answered before the therapy can become standard.

"Will we continue with the gene therapy alone or will we find that we can potentiate the effect of the gene therapy by combining it with something else? Do we combine it with radiation therapy?" asked Dr. Yung. Another possibility is to combine gene therapy with chemotherapy to which tumor cells might be sensitized by the transferred gene.

Researchers also wonder whether different genes should be combined. "How many genes are necessary? How do we rationally combine them to maximum benefit?" Dr. Yung asked. The selection is broad. Like other particularly malignant tumors, glioblastomas are characterized by many altered genes. For glioblastoma multiforme, these include EGF and VEGF receptors, *p53*, *p10*, *p16*, *Rb*, and *MMAC1/PTEN*.

An expected benefit of gene therapy is relative freedom from

Brain Tumor Trials Encompass Radiation, Drug, Biological, and Gene Therapies



the side effects of current standard therapies. Gene therapy does not affect healthy cells, where damage from less strategic therapies evokes adverse side effects.

With gene therapy, according to Dr. Yung, problems lie in finding the optimal vector and in the method of administration. "Toxicity may arise due to the delivery method," he said. "The virus, even an adenovirus, may induce toxicity because it can cause inflammation." Researchers are therefore also working on ways to detoxify the adenovirus. Systemic administration, the preferable method of administration, poses problems because the immune system would destroy the virus before it could deliver the *p53* gene to the brain; therefore, the viral vector must be injected directly into the tumor.

These problems seem to be perceived less as barriers and more as steps in a process to Dr. Yung, who matches his wariness of overselling molecular therapy with confidence that gene therapy may be the new intervention physicians need to combat glioblastoma's dismal outlook: "A gene-based therapeutic strategy," he said, "definitely gives us a rational and targeted approach." ●

FOR MORE INFORMATION, contact Dr. Yung at (713) 794-1285.

Clinical trials currently in progress at The University of Texas M. D. Anderson Cancer Center include the following in brain cancer.

- A phase II trial of thymidine and carboplatin chemotherapy for recurrent malignant glioma (NABTC97-05). *Physician: W. K. Alfred Yung, M.D.*

In this study, patients with histologically proven supratentorial malignant primary gliomas will be treated with intravenous thymidine and carboplatin. Eligible patients must have evidence on a magnetic resonance imaging scan of recurrent tumor that has increased 25% in two dimensions or must have recently undergone surgery that left residual evaluable disease. Patients must have undergone prior radiotherapy that failed and have undergone no more than two prior chemotherapy regimens. Having previously been treated with thymidine or platinum agents makes a patient ineligible. Patients will be treated with the regimen every four weeks. This is a multi-institutional study in cooperation with the North American Brain Tumor Consortium.

- A phase II study of conventional radiation therapy followed with recombinant interferon-beta for supratentorial glioblastoma (RTOG97-10). *Physician: W. K. Alfred Yung, M.D.*

In this study, patients with supratentorial glioblastoma multiforme first undergo six weeks of radiotherapy followed four to six weeks later with three weeks of treatment with interferon-beta three days per week. Patients must begin therapy within four weeks of surgery and have an estimated survival of at least eight weeks. Having undergone previous radiotherapy makes a patient ineligible for enrollment.

- A phase II trial of temozolomide and BCNU for anaplastic gliomas (NABTC97-01). *Physician: W. K. Alfred Yung, M.D.*

In this study, patients with a primary malignant glioma will be treated with temozolomide and BCNU (carmustine). Disease must be documented by enhanced computerized tomography or magnetic resonance imaging within 28 days of enrollment. Studies must indicate progressive disease (a 25% increase in tumor) or a new lesion. Prior treatment with surgery, radiotherapy, or chemotherapy must have proved ineffective.

- A phase I trial of adenovirus-mediated wild-type *p53* gene therapy for malignant gliomas. *Physicians: Frederick F. Lang, M.D., and W. K. Alfred Yung, M.D.*

Patients with malignant primary glioma whose surgery, radiotherapy, or both failed to prevent tumor recurrence or progression are eligible for treatment in this protocol. Using a metal frame for guidance, physicians will inject normal *p53* borne by an adenoviral vector into the tumor. Three days later, patients will undergo craniotomy for tumor removal. Tumors must be ≥ 2.5 cm in diameter. Having chemotherapy previously does not make a patient ineligible, but patients may not have had chemotherapy or radiotherapy within four weeks of entering the study.

FOR MORE INFORMATION about these clinical trials, physicians or patients should call the M. D. Anderson Information Line. Those within the United States, call (800) 392-1611; those in Houston or outside the United States, call (713) 792-6161. Visit the M. D. Anderson Cancer Center clinical trials Web site at <http://www.clinicaltrials.org> for a more complete listing of treatment research protocols.

Celebrating the End of a Destructive Relationship: One Smoker's Story

by Alison Ruffin

*First anniversary
a breakup.*

Her friends called to congratulate her, and she splurged on a shopping trip. She finally had tossed off a bad relationship, one that could have cost her life.

She quit smoking.

This first anniversary is a milestone for [redacted]. After 26 years of smoking and several unsuccessful attempts to stop, the [redacted] who ushers at opera and ballet performances in Houston finally made it.

She credits group counseling sessions at The University of Texas M. D. Anderson Cancer Center that were part of a Department of Behavioral Science research study on nicotine addiction with helping her finally reach her goal of becoming smoke free.

Nicotine has been compared with cocaine and heroin in its capacity to addict, says Dr. Paul Cinciripini, a nicotine researcher in the Department of Behavioral Science.

[redacted] herself first toyed with cigarettes in adolescence. She never intended to become dependent on nicotine.

"When I was going to college, I thought it was cool. Beyond that, it was a rebellious thing to do. I wanted to be a grown-up. Back then it seemed like everybody smoked," [redacted] says.

"But by the time I decided to quit smoking two or three years later, I was an addict. I was hooked," says [redacted] who lives with her two young dachshunds, Franny and Zoe.

"Smoking is so much a part of your life that you can't imagine getting through a day without cigarettes. I couldn't imagine facing the slightest

[Image Redacted]

stress without being able to smoke," she says.

[redacted] admits she felt the addiction was beginning to run her life.

"If I were invited to go somewhere, I thought about whether I would be allowed to smoke there. Cigarettes were making me choose my friends. When invited on outings with nonsmoking friends, I thought, 'I can't be around them longer than an hour and a half.' It's part of being an addict," [redacted] says.

Widespread antismoking campaigns that have resulted in smoking stigmatization contributed largely to her decision to give up cigarettes. But concern for her health finally drove her determination to quit.

"All smokers are terrified of getting cancer. I knew that if I developed lung cancer, I would have given it to myself. I would hate myself for that. I was an instrument of my own destruction, and I didn't like that," she says.

[redacted] had tried quitting in the past but always relapsed.

"I was missing the key ingredient to quitting—a really strong inner

personal commitment," she says.

But a phone call in 1997 from an M. D. Anderson researcher finally strengthened her determination to become smoke free.

"When you get a call from M. D. Anderson and you're afraid of lung cancer, it's a wake-up call," [redacted] says.

Saying her success is "miraculous," [redacted] remains convinced that, with assistance, anyone can break the addiction.

"If you really want to and if you believe you can, you can stop smoking," she says.

"I didn't really believe I could quit until three or four weeks into it. I said to myself, 'Let's just see if this lasts, if one year from now I'm still smoke free.' And here I am." ●

FOR INFORMATION about quitting, call the Tobacco Cessation Clinic at the Cancer Prevention Center at (713) 745-8040 or (800) 438-6434.

HEALTH CONSEQUENCES OF SMOKING

Smoking causes lung cancer. It's true, but that's not all.

Smoking also:

- 1 Increases risk of cancers of the mouth, throat, bladder, colon, and pancreas
- 2 Increases risk of cancer recurrence
- 3 Increases risk of heart attack
- 4 Slows wound healing
- 5 Jeopardizes your baby's life and health if you are pregnant
- 6 Places your family at risk for lung diseases



Using Antioxidants: Read the Road Signs and Yield to Caution

Antioxidants, chemicals found in some foods or synthesized in pill form, have been touted as a magic bullet for preventing cancer. But recent studies now suggest that antioxidant supplements—pills or capsules containing synthesized antioxidants—do not live up to their super-vitamin reputation.



Stopping Cancer Before It Starts

Antioxidants, scientists theorize, neutralize potentially destructive reactive molecules called *free radicals* before they can attack DNA. By halting free radical assault, antioxidants may stop genetic mutation and thereby prevent cancer.

Fruits and vegetables contain many antioxidants. Antioxidants available in pill form include vitamin C, vitamin E, beta-carotene, and the trace mineral selenium.

Proponents of antioxidant supplements claim they can help prevent cancer, heart disease, and various degenerative effects of aging. Clearly a large number of people believe these claims. Sales of vitamins C and E, for example, were estimated at \$708 million in 1994 alone.



Where's the Proof?

But is there substantial scientific evidence to back up the marketing claims? Results of recent studies of the effects of antioxidant supplements on preventing various cancers have been mixed.

A Finnish study of 29,000 male smokers over six years attempted to determine if taking a high level of antioxidant vitamins (vitamin E or

beta-carotene) could reduce lung cancer incidence. The researchers found no benefit from vitamin E and 18 percent more lung cancer among those participants taking beta-carotene.

Another study found no evidence that taking vitamin C, vitamin E, or beta-carotene prevented colorectal cancer. A third study of 22,000 physicians over 12 years found no difference in cancer or cardiovascular disease rates between users and nonusers of beta-carotene.

Do these studies mean that antioxidant supplements do not prevent cancer? The jury still seems to be out on that question. Writing about the large Finnish study, the *New England Journal of Medicine* editorialized, "The results . . . do not disprove the potential benefits of antioxidant vitamins, but they do provide timely support for heightened skepticism."

Recent data suggest that vitamin E and selenium supplements may reduce the risk of prostate cancer. Plans for a large study to determine supplements' definitive role in prevention are under way. Without clear evidence that these supplements can prevent cancer, the National Cancer Institute maintains its stance of not recommending them.



Getting and Following Good Advice

Consumers, however, should not despair. Epidemiologic studies show

that diets rich in fruits and vegetables that are sources of a variety of micronutrients are associated with a reduced risk of cancer. The U.S. Food and Drug Administration, which also has refused to endorse the health claims of beta-carotene or vitamin E supplements, has concluded that consuming such a diet reduces cancer risk.

Why are fruits and vegetables more effective in preventing cancer than supplements? Possibly the answer is that each fruit and vegetable has hundreds of constituents. The protection from disease is likely a result of a combination rather than any single chemical.

So how many fruits and vegetables should be eaten each day? Experts urge Americans to eat five to nine servings daily. It's a seemingly simple solution with far-reaching health benefits. But on a typical day half of all Americans reportedly eat no fruit, and only one quarter eat the recommended five servings.

Simple changes make the five-a-day rule easy: start the day with fruit juice, have a salad at lunch, and try carrot sticks or a piece of fruit for a snack. Eat a cancer-fighting cruciferous vegetable—cabbage, broccoli, brussels sprouts, or kale—with dinner.

With a diet rich in fruits and vegetables, it is possible to reap the cancer-preventing benefits of antioxidants without ever popping a pill.

For more information, contact your physician or contact the M. D. Anderson Information Line:

 (800) 392-1611 within the United States, or

 (713) 792-6161 outside the United States.

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DiaLog

Protecting Hard-Won Surgical Cure: Surveillance for Recurrent Endometrial Cancer

Fran Zandstra, R.N., B.S.N., M.B.A., O.C.N.
Center Administrative Director
Gynecologic Oncology Center

Ninety-six percent of women with endometrial cancer are alive five years after diagnosis. But for the 10% to 12% who experience recurrent disease, those who care for them are left to hope that early detection of recurrence can make a difference in the typically disappointing outcomes in these cases.



median time to recurrence was 14.8 months. At the study's close, nine were alive, but only three were disease free.

From this study's findings, we determined that in the three years after surgery immediate evaluation of symptomatic patients and routine surveillance, including examination, vaginal cytology, and a serum Ca-125 test, could be expected to detect 95% of recurrent disease.

We recommend that all patients be seen annually and another examination at six months be added for those whose risk is high. Also bundled into the examination schedule should be monitoring of vital signs and annual mammography. We believe, too, that communication with patients can improve detection efforts.

For the Gynecologic Oncology Center, we developed a brochure to carry the message. The brochure, on which Practice Outcomes Program Clinical Coordinator Yvette DeJesus, M.S.N., R.N., and I collaborated, makes patients more than silent partners with the health care team. It lays out symptoms patients should report to their physicians and gives them a schedule for follow-up. The bonus of written materials is that they can be consulted by the patient over and over again and are accessible when patients are ready to hear the message.

When women know what to report, they will report it. Then, the relief of having caught a recurrence early can be seen in our faces.

Surveillance of patients following surgery with or without adjuvant therapy, of course, serves purposes other than to promote early detection and treatment of recurrent disease. Follow-up provides opportunities for diagnosing and managing treatment side effects, ensuring health maintenance and screening for other diseases, and supporting the patient psychologically. We are all familiar with the relief in patients' faces when tests produce no evidence of recurrent disease.

To improve M. D. Anderson surveillance efforts, Jana Reddoch, M.D., a fellow, led a retrospective study of 419 patients treated at M. D. Anderson between 1985 and 1992. She found that of the 39 women whose recurrent disease was diagnosed in our clinic, 59% were asymptomatic. After initial surgery, median follow-up was 62 months, and

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