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OncoLog MD Anderson's Report to Physicians

2005

OncoLog Volume 50, Number 11, November 2005

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4

**Do Mind/Body
Techniques Work?**
Growing evidence
suggests real benefits

6

**Diet Affects Lung
Cancer Risk**
Phytoestrogen con-
sumption lowers risk

7

House Call
Patient information:
Tapping into local and
online resources



8

DiaLog
The role of radio-
therapy in lung
cancer treatment

REPORT TO PHYSICIANS

NOVEMBER 2005 Vol. 50, No. 11

OncoLog



Cancer in Young Adults by Vickie Williams

The music is loud and funky—pop, rock, hip hop—accentuating the ambience created by the lively decor and bright, dancing lights

Young men and women move casually from one pocket of the room to another checking things out, looking for a point of interest. Two settle at a pool table. A few choose a DVD to watch on a huge-screen television. Others sit sipping cold drinks as they laugh and joke and tease each other.

It is a typical scene, young people *chillin'*, except this activity center is located inside a hospital rather than a shopping mall or a community center, and the patrons are 15- to 25-year olds with cancer and their same-age friends and family members.

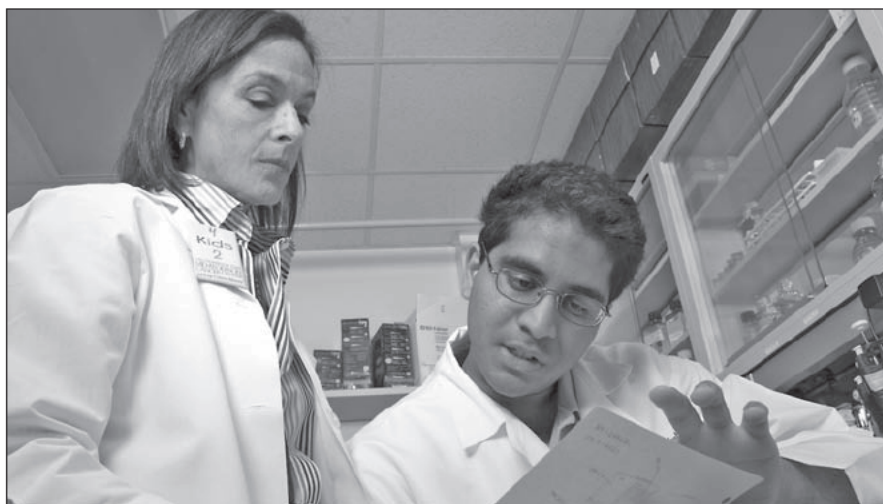
This center, called Kim's Place, is one of the many services The University of Texas M. D. Anderson Cancer Center provides through its Adolescent and Young Adult (AYA) Program, which was established in 1999 to help these patients cope with the cancer-related challenges unique to their age group.



(Continued on
next page)

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Cancer in Young Adults *(Continued from page 1)*



“Cancers that develop in adolescents and young adults have a distribution and biology that is distinctly different from that of cancers in children or in adults, although it’s unclear exactly why.”

– Dr. Eugenie Kleinerman

“Cancers that develop in adolescents and young adults have a distribution and biology that is distinctly different from that of cancers in children or in adults, although it’s unclear exactly why,” said Eugenie Kleinerman, M.D., professor and head of the Division of Pediatrics. “There is a vast difference between these groups in, for example, stage at diagnosis, latency period, tumor histology, response to treatments, and long-term disease- and treatment-related complications. Understandably, the types of psychological and social issues facing these patients also differ.”

Another distinguishing factor is that the adolescent/young adult population of cancer patients lags behind children and adults with respect to progress in clinical care and treatment outcome. “The dramatic progress that has been achieved in the treatment of children and adults with cancer has not been realized in adolescents and young adults,” said Dr. Kleinerman. “Adolescents and

young adults have had a lower reduction in mortality rate and a lower survival increase than younger or older patients. Nationally, the 5-year survival rate among patients 20 to 39 years old has been stuck at about 70% since 1986.”

The reasons for the increased incidence of cancer in this population are not fully established, but of the possibilities, Dr. Kleinerman cites underutilization of health care services by this age group, limited knowledge among patients and family members about clinical trial participation, perceptions among physicians that patients will be noncompliant, and the eligibility limitations of cooperative group studies.

“Combined, these factors clearly point to the need for special psychosocial support programs focusing on adolescent and young adult cancer patients,” said Dr. Kleinerman.

There is also evidence that the incidence of cancer in the adolescent/young adult population is

increasing. “The increase in the incidence of cancer among teenagers was first noted about 25 years ago in a Surveillance, Epidemiology, and End Results report,” said Dr. Kleinerman. “In the 70s, 80s, and early 90s, the increase in the United States was about 1% per year. That rate has decreased somewhat to .8% per year. But this is still faster than the increase in either children or adults.”

Such was the thinking that led to the Adolescent and Young Adult (AYA) Program at M. D. Anderson. “The program provides medical, psychological, social, educational, career-development, and neuropsychological support through traditional and contemporary interventions,” said Martha A. Askins, Ph.D., assistant professor and psychosocial director of the AYA Program. “The program is staffed by a team that includes oncologists, psychologists and psychiatrists, neuropsychologists, social workers, teachers, and clergy who work together to provide comprehensive supportive care.”

In hospitals where there is no medical service specifically dedicated to 13- to 25-year olds, adolescents and young adults are routinely assigned to pediatric- or adult-care units. “Treatment recommendations for adolescent and young adult patients can vary widely between pediatric- and adult-care oncologists, and the differences can have a profound effect on outcome,” said Dr. Kleinerman. Through the AYA Program’s multidisciplinary approach, patients are treated by a team that includes health care professionals from both the pediatric and adult services.

In addition to the clinical issues, the psychosocial experiences of adolescents and young adults with cancer differ from those of children and adults. “While learning to adjust to treatments and side effects, they must cope with emotional distress,

self-esteem issues, and uncertainty about the future,” said Dr. Askins. “And, like all young adults, they also struggle with concerns about dating and marriage, relationships with peers, becoming independent from parents, and assuming responsibility for their own health care.” Through the AYA Program, multiple resources from across the institution and, when necessary, from within the community, are mobilized to provide assistance in all of these areas.

“It is especially important for young patients to share experiences and coping skills with peers when they are undergoing cancer therapy, which can be a lonely and stressful time,” said Dr. Askins. “We encourage socialization and provide special accommodations, such as Kim’s Place, to encourage interaction.” Other year-round social activities sponsored through the program include outings to theaters, festivals, professional sports events, multicultural celebrations, and theme parks; a weeklong camping trip to Camp AOK (Anderson’s Older Kids); and an annual trip to the slopes where patients who have lost a limb to cancer can learn to ski.

A concern for adolescent and young adult cancer patients is having their education interrupted while they undergo treatment. “These young men and women worry about missing school and falling behind in

their coursework, whether they are enrolled in grade school, college, or trade school,” Dr. Askins said. “We counsel students on the many options that can allow them to continue their education without interruption.” Those options include a homebound program, continued participation in their community-based schools, or participation in the M. D. Anderson hospital school, offered in collaboration with the Houston Independent School District.

Special programs are offered to help international students continue their education and to acclimate to the hospital milieu. In addition to grade-level coursework, students can participate in creative arts and physical fitness classes. Counselors tutor patients preparing for college entrance exams and help them complete applications. A special feature of the education program is its career planning and vocational guidance segment, through which patients, including those with cognitive or physical impairments, can explore appropriate job opportunities.

Paramount among the concerns of adolescents and young adults with cancer are body image and sexuality. At the critical age when physical appearance is so important, these patients are losing their hair, wearing indwelling medi-ports, gaining or losing weight, and undergoing surgeries that are often disfiguring. Likewise,

just as their sexual identities are evolving, they find themselves struggling with the possibility of impaired sexual function and infertility.

“These are very sensitive issues, and we approach our patients with compassion and respect,” said Dr. Askins. “Counselors meet with adolescents and young adults separately in weekly group sessions held at Kim’s Place. We encourage them to form social-support networks in which they can express personal feelings about the experience of cancer and about cosmetic and functional changes. We advise them about establishing and maintaining relationships and provide information to help them make decisions about fertility, if required.” Dr. Askins said.

Dr. Askins explained that it is essential to assess for and address potential problems and relevant issues in each of these patients early on.

“At M. D. Anderson, the Adolescent and Young Adult Program is a sort of advocacy group. Our goal is to help these young people develop the psychological and social foundation they will need to cope with the quality-of-life concerns cancer presents—and to do that in a way that makes them feel confident and comfortable.” ●

FOR MORE INFORMATION, contact Dr. Kleinerman at (713) 792-8110 or Dr. Askins at (713) 794-4467.



“It is especially important for young patients to share experiences and coping skills with peers when they are undergoing cancer therapy, which can be a lonely and stressful time.”

– Dr. Martha A. Askins

Do Mind/Body Techniques Work?

Physicians have long been skeptical, but growing evidence supports the idea that yoga and other stress-relieving techniques have tangible health benefits.

Here's a look at the science of stress reduction. **by Karen Stuyck**

More than ever, people with cancer are opting to use a variety of mind/body techniques they hope will decrease their stress, lower their pain, and improve their health. In fact, in a recent study, nearly half of the cancer patients who responded said they'd used mind/body techniques such as visualization and relaxation.

But do these methods really have any effect? That's often the question physicians have when grappling with the best way to advise patients who ask about these techniques. Now, researchers at M. D. Anderson's Integrative Medicine Program are examining the scientific merit of various mind/body techniques. Recent and ongoing studies have focused on stress management, yoga, music therapy, meditation, expressive writing, and several other behavioral approaches.

While studies have shown that people with cancer use complementary medicine approaches for a variety of reasons—including to increase hope, to improve quality of life, and to gain a sense of control and alleviate their symptoms—many also are hoping that mind/body practices will benefit their health by boosting their immune systems.

"Theoretically, a mind/body intervention that is found to decrease patients' stress levels could, therefore, have an impact on the immune system," said Lorenzo Cohen, Ph.D. associate professor in the Department of Behavioral Science and director of the Integrative Medicine Program at M. D. Anderson. "There is extensive evidence that stress suppresses cell-mediated immunity, a component of the immune system involved in tumor surveillance." Dr. Cohen cited the field of psychoneuroimmunology as providing growing evidence of the negative physical effects of stress. Researchers at M. D. Anderson are using animal models to evaluate how psychological stress impacts disease processes and outcomes.

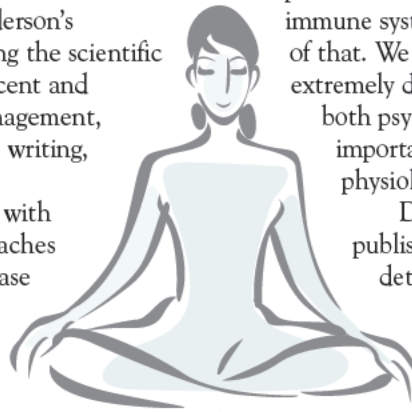
"We know that chronic stress can have a negative impact on aspects of physiological functioning that, in

turn, have negative health implications," said Dr. Cohen. "For instance, stress increases the body's production of the stress hormones cortisol, epinephrine, and norepinephrine; dysregulates the immune system; and decreases cell-mediated immunity, which is specifically relevant for cancer patients."

Dr. Cohen thinks it's logical to consider, then, that interventions to decrease stress may have health benefits. "The majority of research in psychoneuroimmunology explores how stress negatively impacts our hormonal and immune systems and the negative health implications of that. We also know that psychological stress is extremely detrimental for patients' quality of life in both psychological and physical aspects. It is now important for us to examine the psychological and physiological benefits of reducing stress."

Dr. Cohen cites a study he conducted, published last year in the journal *Cancer*, which determined that patients with lymphoma who participated in a Tibetan yoga program had lower levels of sleep disturbances than patients in a control group. Tibetan yoga incorporates controlled breathing and visualization, mindfulness techniques, and low-impact postures. Patients in the yoga group reported that their sleep quality was better, they slept significantly longer, they fell asleep faster, and they used less sleep medication. Since sleep disturbances are a common problem for cancer patients, determining methods for improving sleep quality is especially important, Dr. Cohen said. In a second study of Tibetan yoga—this one with women with breast cancer—the Tibetan yoga group also had fewer intrusive thoughts about their disease and, after one week, had fewer cancer symptoms. A larger phase III clinical trial will study the effects of Tibetan yoga on breast cancer patients undergoing chemotherapy. "We expect the Tibetan yoga will buffer the negative effects of chemotherapy on aspects of the women's quality of life," Dr. Cohen said.

To further test the belief that yoga benefits cancer patients, M. D. Anderson scientists recently have signed an agreement to enter into a research collaboration with Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA Research Foundation) in Bangalore, India. The largest yoga therapy research Health Home Arogyadhama in India, the foundation has conducted extensive research on the effects of yoga on both healthy people, people with various medical conditions, and those with cancer.



There is extensive evidence that stress suppresses cell-mediated immunity, a component of the immune system involved in tumor surveillance.

—Dr. Lorenzo Cohen



“The majority of research in psychoneuroimmunology explores how stress negatively impacts our hormonal and immune systems and the negative health implications of that.”

– Dr. Lorenzo Cohen

In collaboration with these scientists, Dr. Cohen recently completed a study of the effects of hatha yoga, an Indian-based yoga practice, on 62 breast cancer patients undergoing radiation treatment. An abstract being presented at the annual meeting of the Society for Integrative Oncology reports that the researchers found better physical functioning and general health and significantly lower levels of sleep-related daytime dysfunction in the women who practice hatha yoga, compared with the control group. Women in the yoga group participated in hatha yoga two times a week during the course of their radiation therapy. A grant from the National Cancer Institute (NCI) is funding a larger trial of this research.

Expressive writing is another mind/body technique the Integrative Medicine researchers are exploring. In one recent randomized trial, patients with renal cell carcinoma were asked to write their deepest thoughts and feelings about their kidney cancer experience during four separate 20-minute sessions. “The paradigm for expressive writing is to do very brief, acute writing sessions. People are instructed to perhaps write about things they haven’t shared with anyone else,” Dr. Cohen said. In comparison with control group members who wrote about neutral topics, the patients in the expressive writing group reported significantly lower levels of sleep disturbances, with better overall sleep quality, longer sleep duration, and less daytime dysfunction.

A larger phase III trial, also funded by NCI, is continuing this research on a bigger scale. “We’re examining not only sleep and other aspects of quality of life, but also physiological function by measuring patients’ immune systems,” he said. The researchers specifically picked patients with kidney cancer because that disease is immunogenic and “expressive writing interventions have been shown to positively impact aspects of the immune system,” Dr. Cohen said.

Other recently completed research is focusing on music therapy and various relaxation techniques. One study is examining the effects of music therapy on the mood and quality of life of patients who have undergone bone

marrow transplantation. In another, men scheduled to undergo radical prostatectomy were taught stress management skills such as diaphragmatic breathing, guided imagery, and cognitive therapy strategies for managing stress and having realistic expectations of recovery. The research is evaluating whether or not the pre-surgical stress reduction program affected patients’ psychological well being and other physiological factors.

Another study is evaluating the effectiveness of using a custom-designed hand-held computer program to supplement a cognitive behavioral stress management program for breast cancer patients who are receiving chemotherapy. The computer program reinforces the skills patients learned in four individual therapy sessions: diaphragmatic breathing, guided imagery, progressive muscle relaxation, and cognitive therapy.

Nurses teach mindfulness relaxation techniques to patients undergoing chemotherapy in a large phase III randomized trial. Patients first are taught the techniques before starting chemotherapy, then are given an audio tape of the mindfulness training, which they are encouraged to use at least once a day throughout chemotherapy. When the pilot phase is over, a larger randomized trial will compare the effectiveness of mindfulness relaxation and listening to relaxing music.

The Integrative Medicine Program has also received a grant from the NCI to develop a center to study traditional Chinese medicine for cancer patients in collaboration with The Fudan University Cancer Hospital in Shanghai, China. The investigators are examining mind/body approaches such as qigong, as well as acupuncture and natural substances.

“As a comprehensive cancer center, we don’t just treat cancer, we treat people who have cancer,” said Dr. Cohen. “So it’s incumbent upon us to explore the potential benefit of therapies that have some evidence of efficacy, even nonconventional therapies such as yoga.” ●

FOR MORE INFORMATION, contact Dr. Cohen at (713) 745-4260.

Phytoestrogen Consumption May Reduce Lung Cancer Risk

Eating vegetables and other foods that have weak estrogen-like activity appears to reduce the risk of developing lung cancer, researchers at M. D. Anderson have found. The findings were true for both smokers and nonsmokers, said researchers.

In the September 28 issue of the *Journal of the American Medical Association*, the investigators reported that study participants who ate the highest amount of foods with dietary “phytoestrogens” had a 46% reduced risk of developing lung cancer, compared to those who ate the lowest quantity. More than 3,500 people participated in the research—making it the largest case-control study to examine dietary phytoestrogens and lung cancer risk in a U.S. population, according to the researchers.

“What we have found is intriguing and supports a small but growing body of evidence that suggests estrogenic-like compounds in food may help protect against development of lung and other cancers,” said the study’s lead author, Matthew Schabath, Ph.D., a postdoctoral researcher in the Department of Epidemiology. “But these kinds of studies, which rely on a person’s recall of the food they have eaten months before, have known limitations and require more investigation.”

“The best cancer prevention advice continues to be to stop smoking, and it is clear that all of us can benefit from healthy eating and exercising,” said the study’s principal investigator, Margaret Spitz, M.D., chair of the Department of Epidemiology. “Still, our results generally show that higher intake of these foods resulted in lower lung cancer risk, and that is certainly a tantalizing preliminary finding.”

One of the most intriguing findings, says Dr. Schabath, is that people who had never smoked had a reduced chance of developing the disease if they ate large quantities of phytoestrogen-rich food. “About 15% of lung cancers occur in lifetime ‘never smokers,’ and besides exposures to second-hand smoke, other risk factors for these cancers are yet to be determined.”

The study builds on the group’s 2004 finding that women who used hormone replacement therapy had a lower risk of developing lung cancer than women who did not. The researchers wondered if the same might be true of foods that have naturally occurring low levels of estrogens.

The researchers then divided consumption into three categories of foods that contain phytoestrogens: isoflavones (soybeans and soy products, chickpeas and red clover), lignans

(rye grains, linseeds, carrots, spinach, broccoli, and other vegetables), and coumesterol (beans, peas, clover, spinach, and sprouts). They then divided consumption of these foods into quartiles, from highest use to lowest use, as measured against all participants. They then compared the two groups, and among their findings were:

- Overall, consumption of phytoestrogens was statistically significantly higher in controls than in cases.
- The overall reduction in lung cancer risk was 46% for the highest intake of all phytoestrogens from food.
- For men, statistically significant trends were noted for each class of phytoestrogen when they were consumed at the highest levels. For example, isoflavones reduced lung cancer risk by 44%, and lignans reduced the risk by 27%.
- In women, only intake of total phytoestrogens from food sources was statistically significantly higher in controls than in cases. High consumption of these foods reduced risk by 34%, but no effect was seen when individual classes of phytoestrogens were evaluated.

The researchers suggest that phytoestrogens may help protect against lung cancer development because they latch onto estrogen receptors that are present in both normal and malignant lung tissue, and this binding could exert a role in the regulation or deregulation of cancer growth. But they cannot say why women, in general, seemed to benefit less than men do from eating high quantities of specific classes of food with phytoestrogens, or why former smokers seemed to benefit less. While the results are intriguing, the investigators caution that much more research is needed to prove a definitive chemoprevention effect. ●



The researchers also found gender-specific benefits for different classes of phytoestrogens. Men who ate the highest amount of soy-isoflavones lowered their risk of developing lung cancer by 72%, and women who ate the most lignan-containing fruit and vegetables by 41%. For women who also used hormone replacement therapy, the protective effect was further enhanced.



Tapping into Local and Online Resources

Education is an important step in your fight against a serious illness like cancer.

However, the idea of researching a health care topic can be daunting if you have never done so. Fortunately, you don't have to immerse yourself in technical journals or hold a medical degree to find and understand the information you need. In fact, it's never been easier to educate yourself on cancer. Here's where you can start.

Search the Internet.

Web-based information is free and readily available 24 hours a day. Among the resources accessible online are medical dictionaries and encyclopedias, cancer statistics, listings of support programs, information on treatment options and clinical trials, and the latest in research findings. Random Internet searches can be overwhelming if you don't know where to look. Start instead by visiting the Web sites of major health organizations and cancer-related agencies:

- **American Cancer Society**
www.cancer.org
- **Association of Cancer Online Resources**
www.acor.org
- **CancerCare**
www.cancercare.org
- **Healthfinder**
www.healthfinder.gov
- **National Cancer Institute**
www.cancer.gov
- **MedlinePlus**
www.nlm.nih.gov/medlineplus
- **People Living with Cancer**
www.peoplelivingwithcancer.org



If you consult other Internet resources, evaluate the credentials of the author or organization and check that the information is current. If the Web site is not documented well, it's a good idea to verify the information in another source.

You can also browse the Web sites of major cancer care centers. Introductory information for new and prospective patients is available, along with a broad range of educational material intended for a general audience. A listing of comprehensive cancer centers designated by the National Cancer Institute is available online at www.nccn.org.

Visit the library.

Your local library undoubtedly has books on cancer topics written for a general audience, and borrowing is free if you are a library card holder. If you need more specific books or articles, visit a university or medical school library. Here, you will have access to healthcare journals, online databases, and a broader range of cancer-related books. Something to keep in mind before you go to any library is that medical information is always progressing, and last year's article or book may already be outdated. Make sure that what you're reading is current.

Visit a local cancer care center.

Public education is a major goal of any cancer care center, and thus many cancer care centers have patient education departments that are open to the public. The trained health care professionals you'll find there will help you navigate the databases, search the Internet, and browse through print materials to find exactly what you need. Opportunities to participate in informational sessions or special events may also be available.

Call an advocacy or support group in your area.

A simple phone call can get you on the right track. Volunteer organizations are happy to hear from the people they serve,

and you'll find that they will gladly share information with you. Cancer-related organizations are listed in the Yellow Pages under several different headings. Start by searching under "cancer," "health care," and "social service." You can also search for organizations in your area by entering your zip code on the American Cancer Society Web site (www.cancer.org).

Get involved.

There are plenty of opportunities to volunteer your time and unique abilities to help organizations in your area. If you get involved, you'll meet other people who are interested in educating themselves on cancer-related issues. Hearing first-hand stories is particularly beneficial, as you'll learn how others are coping and how they are finding the information they need. You'll also have the chance to educate others by sharing your own stories and experiences.

Ask your doctor.

Your doctor may be able to verify the accuracy of your research and direct you to any additional resources that you may have overlooked. Please keep in mind that it is important to discuss your findings with your doctor before you make any decisions related to your health or the health of a loved one. ●

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

 **(800) 392-1611, Option 3,**
within the United States, or

 **(713) 792-3245** *in Houston and outside the United States.*

November 2005

M. Gonzales

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M. D. Anderson Cancer Center

DiaLog

Radiation therapy and lung cancer

by James D. Cox, M.D., Professor and Head of the Division of Radiation Oncology



While surgical removal of a malignant tumor is the preferred way to treat lung cancer, surgery isn't always feasible. Many patients cannot have the tumor removed either because medical conditions make the operation too risky or because the tumor has involved structures that cannot be removed. In these patients, as long as cancer has not metastasized, radiation therapy still offers a real chance of cure.

Small tumors in the lung can be treated with radiation therapy alone. Cancer cells in tumors no larger than an inch can usually be killed; the dead cells are removed by normal physiological mechanisms, and the amount of normal lung damaged is small. A recent study showed that three-dimensional techniques that deliver high doses of radiation in the precise shape of the tumor are more effective than older techniques. Higher radiation doses may be given to the tumor while avoiding most of the normal lung. Small tumors in certain locations can even be treated with three or four very high doses using computed tomography (CT) scans before each treatment to pinpoint the tumor. Results with such treatments have been reported to be similar to results with surgical removal.

Combining radiation therapy with chemotherapy can still cure some patients with larger tumors, especially ones that have spread to lymph nodes in the chest. Although these combined

treatments have resulted in side effects in the past, newer targeting techniques such as three-dimensional conformal radiation therapy, or 3D CRT, and intensity modulated radiation therapy, or IMRT, avoid normal tissues better and result in less frequent and milder side effects. A study done at M. D. Anderson showed it was possible to give more chemotherapy in combination with 3D CRT than was possible with older techniques. M. D. Anderson investigators have also reported higher cure rates from giving chemotherapy and radiation therapy at the same time than previously reported.

Progress in the future is expected to come from combining new molecularly targeted therapies with radiation therapy and chemotherapy for inoperable tumors. We have seen striking effects with one of these agents, Iressa, on lung cancer in a small number of patients. We have seen major benefits from adding an antibody against part of the cancer cell with radiation therapy in cancer of the head and neck.

Progress is also expected from the use of proton therapy for lung cancer. Proton therapy can give very high radiation doses to the tumor while avoiding the lungs, heart, and esophagus better than the most sophisticated x-ray techniques. The Proton Therapy Center at M. D. Anderson is nearing completion. Molecular targeting and physical targeting with protons, plus chemotherapy, will be a major thrust for research and treatment of lung cancer in the years ahead. ●

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Made possible in part by a gift from the late Mrs. Harry C. Wiess.

