

New Weapon in the Fight Against Cancer-Brings Nebraska Health System Patients New Hope New Weapon in the Fight Against Cancer-Brings Nebraska Health System Patients New Hope

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(OMAHA, Neb.) -- Nebraska Health System (NHS) patients with head and neck tumors will find a powerful new tool in the fight against cancer.

NHS is the first hospital in Nebraska and one of only a few in the Midwest to offer patients Intensity Modulated Radiation Therapy (IMRT), a highly sophisticated new technology of radiotherapy. IMRT enables the radiation oncologist to improve radiation targeting of tumors regardless of their size or shape. This improved targeting technique allows the radiation to attack the cancer without damaging nearby healthy tissue and organs.

"We are excited about having this treatment modality available for our patients," said Charles Enke, M.D., Chairman and Professor of the Department of Radiation Oncology at the University of Nebraska Medical Center (UNMC). "In addition, the experience that Weining (Ken) Zhen, M.D. (Radiation Oncologist), Cheng Saw, Ph.D. and Ayyangar Komanduri, Ph.D. (Medical Physicists), bring as a team is essential in implementing IMRT clinically at UNMC/NHS," Dr. Enke said.

IMRT is a revolutionary approach to the delivery of radiation," said Dr. Ken Zhen, Assistant Professor of Radiation Oncology at UNMC. "It (IMRT) is capable of automatically creating and implementing an optimized treatment plan for targeting tumors of almost any size or shape in essentially any anatomical location. It can also concurrently plan for and treat multiple targets to the same dose or can give each target a different dose if so desired. I think this technology represents the future of radiation therapy," said Dr. Zhen, who is on staff at NHS.

Conventional radiation therapy uses beams of uniform intensity, which makes it extremely difficult for radiation oncologists to direct the right amount of radiation to the tumor without jeopardizing surrounding tissue. That means, in some cases, the physicians must either stop short of optimally treating the tumor or proceed with the increased risk of negative side effects by damaging healthy organs and tissue that are adjacent to the tumor.

The IMRT addresses that risk by utilizing many pencil-thin beams of varied intensity during the delivery. This technique allows the radiation oncologists to deliver more radiation to the tumor while protecting the surrounding normal tissue.

"IMRT precisely tailors the shape of the radiation beam to the tumor, sparing critical adjacent structures and reducing the risk of complications usually associated with conventional radiotherapy," said Dr. Zhen.

While the radiation oncologist determines the optimal dose of radiation to deliver to the tumor, taking into account the surrounding structures, a sophisticated computer creates a dose plan that selects the best pathways to achieve the desired results, using these differing amounts of radiation beams. Highly trained radiation oncology professionals, along with the radiation oncologist, are involved with the treatment planning and delivery. "Patients treated with IMRT may have a better chance of tumor control and quality of life after therapy," Dr. Zhen added.

Patients with recurrent cancers or inoperable tumors who have already received the maximum amount of conventional radiation, can also benefit from this new technology, which may allow for higher treatment doses.

In addition to the Head and Neck cancers, other areas being investigated for the benefits of IMRT include Prostate, Lung, Hodgkin's disease and Lymphoma. The Department of Radiation Oncology is already engaged in a program that delivers higher than normal doses of radiation to the prostate gland using an ultrasound-based targeting system (BAT). The goal with this program, similar to the IMRT, is to increase the treatment dose to the tumor and decrease the amount of dose or potential damage to the surrounding normal tissue.

Currently, the IMRT is being used to treat cancers in the head, neck and brain regions. The radiation oncology team investigates the best course available for the clinical situation, of which, IMRT maybe an option. In the future, treatment options for various other cancers utilizing the benefits of IMRT will be evaluated as this technology continues to develop.

Nebraska Health System (NHS) is one of the region's premier health systems serving more than 25 percent of the Omaha-area market with its 687-bed facility. NHS is comprised of the former Clarkson Hospital, the first hospital in Nebraska, and the former University Hospital, the primary teaching facility for the University of Nebraska Medical Center. The regional health system has a world class reputation for excellence and innovation especially in the areas of solid organ transplantation, burn care, wound care, geriatrics, bone marrow (stem cell) transplantation and other cancer treatments. In 1999 NHS was named "Best Hospital" for cancer and rheumatology care by U.S. News & World Report Magazine. NHS is constantly improving the standard of care in the communities it serves. The health system physicians operate more than 300 outpatient clinics in 100 communities in four states and maintain affiliations with Shenandoah Memorial Hospital in southwestern Iowa, and Community Hospital in Fairfax, Mo. The NHS Clarkson West facility provides the only 24 hour emergency service in west Omaha.

UNMC is the only public academic health science center in the state. Its educational programs are responsible for training more health professionals practicing in Nebraska than any other institution. Through its commitment to research, education, outreach and patient care, UNMC has established itself as one of the country's leading centers for research in cancer, genetics, cardiovascular diseases, neurodegenerative diseases and arthritis. During the past year, UNMC's research funding increased by 31 percent and now exceeds \$40 million, including more than \$25 million in federal funding from such sources as the National Institutes of Health, the National Science Foundation, Department of Defense and Veterans Administration.