

Proton therapy Used More to Treat Cancer

by AP-News

Francis Maloy lay on his back on a narrow, metallic table, waiting for a giant machine to bombard the tumor in his chest with proton beams.

"The last time I heard about protons I was in college taking physics," said Maloy, a 68-year-old retired Army colonel from Stuart, Fla., just before the procedure.

Maloy, who has advanced lung cancer, is one of the first patients being treated at the University of Texas M.D. Anderson Cancer Center's new \$125 million Proton Therapy Center.

It is the largest of the nation's four centers that treat cancer by targeting proton beams narrowly on the tumor itself, sparing the healthy tissue that with typical X-ray radiation would be blasted along with the cancer cells.

While newer forms of traditional radiation, with the help of computers, also allow doctors to precisely target a tumor, proton therapy allows higher levels of radiation. For a patient like Maloy, it could be his best hope at this stage of his cancer.

Dr. James Cox, chief of radiation oncology at M.D. Anderson, wasn't always a believer in the technology. But he said studies have shown proton therapy allows a higher level of radiation on the tumor, with less damage to healthy tissue and fewer side effects, such as loss of appetite, diarrhea and headaches. "That was the breakthrough, what changed my mind," he said.

"Anytime you have cancer in any location where it requires a high dose for control and it's close to sensitive normal structures (such as the eye, the skull, the spinal cord) that's an indication for proton therapy," said Cox. It also is useful for treating cancer in children, who are more sensitive than adults to the side effects of radiation.

Doctors at M.D. Anderson are using proton beam treatments mostly on patients whose cancers are so early in development that a cure is possible. But it is also being used on people like Maloy, who have relatively advanced cancers, Cox said.

Proton therapy has been around since the mid-1950s but was done mostly at research facilities, according to the National Association for Proton Therapy. The world's first hospital-based facility opened in 1990 at Loma Linda University Medical Center in California.

M.D. Anderson's new center is the largest, covering 94,000 square feet that include five treatment rooms. The massive machinery used to produce the proton beams looks like something from a science-fiction spaceship. Behind three of the treatment rooms are steel barrels 3 stories high and weighing 190 tons. They house bending magnets, electrical wires and monitors that work with a tubular device called an injector and a compact particle accelerator to create and energize the protons and send them into a patient's tumor.

But proton therapy, which is covered by Medicare and most insurance companies, is about three times more expensive than traditional radiation, in part because of the cost of the facilities, Cox said.

Some doctors worry that the benefits to a few cancers don't outweigh the enormous costs, especially when recent advances in traditional radiation make it safer to use.

Dr. Eric Horwitz, clinical director of the Department of Radiation Oncology at Fox Chase Cancer Center in Philadelphia, said proton therapy has an advantage in treating relatively rare cancers such as those in children or of the spinal cord.

More study is needed to find out if it's more effective for common cancers, such as prostate and lung, than the newer, cheaper forms of traditional radiation, he said.

A study last September in the *Journal of the American Medical Association* concluded that men who were treated for prostate cancer with higher doses of radiation, in part through proton therapy, were less likely to have cancer return than men who got traditional X-ray radiation treatment. The study, funded by a National Cancer Institute grant, was conducted by doctors who work at two of the country's other proton therapy centers.

An accompanying editorial to the study by Drs. Theodore DeWeese and Danny Song with Johns Hopkins University School of Medicine in Baltimore questioned whether higher doses of radiation are the best way to improve outcomes.

"As such, this study has not answered the important question of whether patients should accept the modest but real incremental risk of higher radiation doses for the uncertain ultimate benefit derived," DeWeese and Song

wrote.

But proponents like Dr. Nancy Mendenhall, medical director of the new Florida Proton Therapy Institute in Jacksonville, says that reducing radiation's side effects could translate into lower health care costs in the long run.

"I think it will be a part of mainstream radiation oncology if we fully embrace its advantages," she said.

As for lung cancer patient Maloy, he is getting proton therapy five days a week for about two months, plus weekly chemotherapy.

"I feel nothing in there, except it's uncomfortable laying on their machine," he said. "You don't know anything is happening. It's magical."

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(08-22) 00:55 PDT HOUSTON (AP) --
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