Can Proton Therapy Help Breast Cancer Patients?

Can the precision of a proton beam keep the hearts of breast cancer patients safe during radiation treatment?

A national collaborative study is now underway to find out. And the results could help define the future of breast cancer radiotherapy treatment.

Proton beam therapy, also called proton therapy, is a newer approach to delivering radiation to many cancers. It offers greater accuracy, reducing radiation exposure to nearby healthy tissue. This had made the treatment especially appropriate for cancers in or near the chest, like breast cancer—protecting critical organs like the heart and lungs.

Preserving healthy heart tissue

Cancers of the left breast are of particular concern since they are located closer to the heart.

“This is the largest study ever to compare standard radiotherapy with proton beam therapy in breast cancer patients,” says Dr. Cristiane Takita, the proton breast program leader at Sylvester Comprehensive Cancer Center. “More than 1,200 patients are being enrolled nationwide, including here in the Miami area. Participating patients are randomly assigned to either traditional photon radiation therapy, or to proton beam therapy. If the data shows that proton therapy for this cancer leads to equal recurrence reduction and fewer adverse cardiac events it will establish a new national treatment guideline.”
Study participants will be monitored for at least 10 years after completing their radiation therapy, says Dr. Takita. Experts will measure and compare the patients’ reported levels of fatigue, anxiety, and self-body image.

Previously, according to the Journal of the American Medical Association, researchers have reported a less than one percent average risk of a patient developing heart disease over 10 years following radiation therapy for cancer of the left breast. But that risk factor triples in patients who already had other high-risk factors for heart disease.

“Smaller studies done at individual centers have shown a significant benefit of proton beam therapy over photon beam radiotherapy for these reasons,” says Dr. Takita. “By expanding the participant base, as well as the study length, our results may help ensure the best options are made available to patients in an affordable manner.”

**Proton therapy for other breast cancer cases**

In addition to helping to improve non-metastatic breast cancer treatments, the team at the Dwoskin Proton Therapy Center at Sylvester can treat other cancers of the breast, says Dr. Takita. This includes select cases of locally advanced breast cancer in younger women; patients with previous radiation treatment to the same site; and those with a condition called pectus excavatum—in which the heart is stuck in the
chest wall, making a breast cancer impossible to safely treat with traditional forms of radiotherapy.

“We use a stepwise procedure to determine which cases are most appropriate for this therapy,” says Dr. Takita. “By running comparative treatment plans, our team can recommend what may be the best route of achieving radiation therapy success and sparing healthy tissue.”

This allows her team to work with insurance providers to seek the approvals necessary for specific cases—since other advanced radiation therapies offered can provide outstanding results for cancers not located as close to critical organs.

Proton beam therapy is also utilized for other cancers, such as those of the brain and spinal cord, as well as pediatric cancers.

“As a National Cancer Institute-designated comprehensive cancer center, we want to continue bringing state of the art research and treatment programs to South Florida,” says Dr. Takita. “The type of proton therapy available here is one of the most advanced forms of radiation therapy available today. We look forward to expanding its use for breast cancer patients, and to sharing the results of our consortium’s research.”

About the study: Dr. Cristiane Takita is a principal investigator for the Pragmatic Randomized Trial of Proton vs. Photon Therapy for Patients with Non-Metastatic Breast Cancer. The national clinical research trial, which began in 2016, is also known as the Radiotherapy Comparative Effectiveness (RADCOMP) Consortium Trial.

Learn more about proton therapy at Sylvester's Dwoskin Proton Therapy Center. To
schedule a consultation and find out if proton therapy is an option for you, call 1-844-324-HOPE (4673).

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