Proton therapy safe, effective for early-stage lung cancer patients

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Proton beam therapy is safe and effective and may be superior to other conventional treatments for Stage I inoperable non-small cell lung cancer (NSCLC) patients, according to a study in the October issue of the *International Journal of Radiation Oncology-Biology-Physics,* the official journal of the American Society for Radiation Oncology (ASTRO).

Lung cancer is the number one cause of cancer death for men and women, according to the American Cancer Society. The standard treatment for early-stage lung cancer is surgery to remove all or part of the lung, but for patients with inoperable lung cancer, radiation is commonly used for treatment.

Researchers in Japan sought to determine if proton beam therapy was a good treatment option for patients with inoperable NSCLC versus conventional external beam radiation therapy and stereotactic body radiation therapy, which is a specialized type of external beam radiation therapy that uses focused radiation beams to target a well-defined tumor and relies on detailed imaging, computerized three-dimensional treatment planning and precise treatment setup to deliver the radiation dose with extreme accuracy.

Patients were treated with proton beam therapy from November 2001 to July 2008 with different doses given to peripherally located tumors and centrally located tumors. The two-year progression-free survival rates for those doses were 88.7 percent and 97 percent, respectively. The survival rate for stereotactic body radiotherapy is 54.7 percent at two years and the survival rates for conventional radiotherapy range from 6 percent to 31.4 percent at five years.

"Proton beam therapy is safe and effective, if not superior to other nonsurgical modalities, for treating patients with inoperable Stage I NSCLC," Hidetsugu Nakayama, M.D., Ph.D., lead author of the study and a physician at the Proton Medical Research Center in Tennoudai, Tsukuba, Ikbaraki, Japan, said. "The randomized clinical trial that compares proton beam therapy with stereotactic body radiotherapy is needed to clarify survival benefit."

Provided by American Society for Radiation Oncology