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External beam partial breast irradiation most cost-effective treatment

Fairfax, Va., June 2, 2009 – External beam partial breast irradiation (EB-PBI) is the most cost-effective method for treating postmenopausal women with early-stage breast cancer based on utilities, recurrence risks and costs when compared to whole breast radiotherapy (WBRT) and brachytherapy partial breast irradiation (brachy-PBI), according to a study in the June 1 issue of the *International Journal of Radiation Oncology*Biography*Physics*, the official journal of the American Society for Radiation Oncology (ASTRO).

PBI is a newer form of radiation therapy for breast cancer where only part of the breast is treated twice a day for four to five days. Radiation oncologists have been studying different methods to deliver the radiation to the tumor. EB-PBI uses high-energy external X-rays to deliver radiation to the breast after a lumpectomy and brachy-PBI delivers radiation through either implanted needles or a small sphere placed into the post-lumpectomy cavity in the breast.

Whole breast radiation therapy is currently the standard of care, but it is a more time-consuming treatment, as it involves five to seven weeks of daily treatments using a linear accelerator to deliver X-rays to the tumor site. While the convenience of receiving radiation for one week instead of five to seven weeks is obvious, the cost-effectiveness of the different methods of treatment has never been analyzed. Doctors are also still examining long-term data to see whether partial breast irradiation is as effective at curing the cancer as whole breast radiation.

In a previous study, researchers at the Harvard Radiation Oncology Program, the Dana-Farber Cancer Institute and Brigham and Women's Hospital Department of Radiation Oncology, and the Massachusetts General Hospital Department of Radiation Oncology, all in Boston, and the Brandeis University Heller School for Social Policy and Management in Waltham, Mass., determined that under most circumstances, the quality-adjusted life expectancy was higher in patients receiving PBI than WBRT. In this study, they sought to determine if PBI is better from a cost standpoint.

“According to the American Cancer Society, almost 200,000 women will be diagnosed with breast cancer in 2009. Given this high prevalence, resource-conscious healthcare systems may want to consider cost-effectiveness when deciding on appropriate adjuvant therapies for patients with early-stage breast cancer,” Rinaa Punglia, M.D., M.P.H., senior author of the study and a radiation oncologist at Dana-Farber Cancer Institute and Brigham and Women’s Hospital, said.

EB-PBI was significantly more cost-effective than WBRT, although WBRT was clearly found to be more cost-effective than brachy-PBI. In fact, WBRT was associated with a cost-effectiveness ratio of \$630,000 per quality-adjusted life year in comparison to EB-PBI. A ratio of \$50,000 per quality-adjusted life year is considered to be cost-effective.

“In a cost-conscious environment, our results suggest that EB-PBI should be given preference over WBRT for the appropriate patients, and unless the costs associated with brachytherapy are significantly decreased, it cannot be considered a cost-effective treatment.” David Sher, M.D., M.P.H., lead author of the study and a radiation oncologist at the Dana-Farber Cancer Institute, said. “Partial breast irradiation, however, is still not considered the standard of care for treating breast cancer. I encourage women interested in this treatment to talk to their radiation oncologists about the benefits and risks of these treatments and consider enrolling in a clinical trial.”

ASTRO is the largest radiation oncology society in the world, with more than 10,000 members who specialize in treating patients with radiation therapies. As the leading organization in radiation oncology, biology and physics, the Society is dedicated to improving patient care through education, clinical practice, advancement of science and advocacy. For more information on radiation therapy, visit www.rtanswers.org. To learn more about ASTRO, visit www.astro.org.

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