
RSNA Press Release

Radiofrequency Ablation Effective Treatment for Inoperable Lung Cancer

Released: March 30, 2007

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OAK BROOK, Ill.—Lung cancer patients who are not candidates for surgery now have another safe and effective treatment option: radiofrequency (RF) ablation, according to a new study published in the April issue of the journal *Radiology*.

The Brown Medical School and Rhode Island Hospital study showed that RF ablation used to treat early-stage, inoperable cancer resulted in outcomes that were equal to or better than those achieved through external beam radiation (EBT), a decades-old alternative to the surgical removal of cancerous tissue.

"In our study, RF ablation produced meaningful results in terms of both survival and tumor control," said Damian E. Dupuy, M.D., director of tumor ablation at Rhode Island Hospital and professor of diagnostic imaging at Brown Medical School in Providence. "The best two-year survival rate for early-stage lung cancer using EBT is 51 percent, compared to 57 percent with ablation."

Lung cancer is a leading cause of death in the United States. The National Cancer Institute estimates that in 2007, more than 213,000 Americans will be diagnosed with lung cancer and more than 160,000 deaths will result from the disease.

Patients with primary lung cancer, in which cancerous cells first develop in the lung, often are of advanced age and have highly diseased lungs and impaired heart function, making them poor candidates for invasive surgery. The same conditions can also make it difficult for patients to be treated with EBT, which directs focused beams of radiation at a tumor to destroy the abnormal cells.

"Conventional EBT therapy involves 33 treatments over a six-week period and can often lead to side effects including radiation pneumonia and the permanent loss of lung tissue," said Dr. Dupuy. "RF ablation, which uses high-frequency electrical currents to heat and

At A Glance

- Radiofrequency (RF) ablation, a minimally invasive, outpatient procedure, is effective in treating early-stage, inoperable lung cancer.
- In a study of 153 patients, RF ablation performed equal to or better than external beam radiation.
- RF ablation also helped control tumor progression.
- Lung cancer is a leading cause of death in the United States.

destroy abnormal cells, is performed in a single day as an outpatient procedure, is minimally invasive and has few side effects."

In his study, Dr. Dupuy and a research team evaluated the outcomes of 153 patients who underwent computed tomography (CT)-guided RF ablation for 189 inoperable lung cancers, including 116 primary lung cancers and 73 metastases to the lung from other cancers. The majority of the patients, who ranged in age from 17 to 94, also suffered from severe cardiopulmonary disease.

The one, two, three, four and five-year survival rates for stage I, non-small cell lung cancer treated with RF ablation were 78 percent, 57 percent, 36 percent, 27 percent and 27 percent, respectively. A recent study reported that patients with similar cancers who underwent conventional EBT had a three-year survival rate of 34 percent.

Patients with colorectal pulmonary metastasis, in which cancer began in the colon and spread to the lung, had a 57 percent five-year survival rate following RF ablation, which is better than some surgical studies.

"It's important for physicians to know that RF ablation is a treatment option for their sickest and elderly patients," Dr. Dupuy said.

The study also showed that RF ablation helped control the progression of patients' tumors. Tumors three centimeters or smaller took an average of 45 months to grow following treatment; tumors larger than three centimeters progressed in an average of 12 months.

"As the means of detecting early-stage lung cancer improves, we will see less invasive treatment options such as ablation replace surgery during our lifetime," Dr. Dupuy said.

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Journal attribution required.

Radiology is a monthly scientific journal devoted to clinical radiology and allied sciences. The journal is edited by Anthony V. Proto, M.D., School of Medicine, Virginia Commonwealth University, Richmond, Va. *Radiology* is owned and published by the Radiological Society of North America, Inc. (radiology.rsna.org)

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"Pulmonary Radiofrequency Ablation: Long-term Safety and Efficacy in 153 Patients." Collaborating with Dr. Dupuy on this paper were Caroline J. Simon, M.D., Thomas A. DiPetrillo, M.D., Howard P. Safran, M.D., C. Alexander Grieco, M.D., Thomas Ng, M.D. and William W. Mayo-Smith, M.D.