
RSNA Press Release

Minimally Invasive Breast Cancer Treatment Shows Promise

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OAK BROOK, Ill. - A pilot study using radiofrequency (RF) ablation to treat small breast cancers has found the procedure feasible and safe, according to an article appearing in the April issue of the journal *Radiology*.

"This study has added another potential weapon to the breast cancer treatment arsenal," said the study's lead author, Bruno D. Fornage, M.D., who is a professor of radiology and surgical oncology at The University of Texas M. D. Anderson Cancer Center in Houston.

RF ablation treats tumors with heat produced by an electrical current. Ultrasound imaging is used to guide a needle-electrode to the tumor's center, where a temperature of approximately 200° F is applied for 15 minutes to destroy malignant tissue.

To determine the feasibility and safety of RF ablation in the treatment of small breast cancers (2 centimeters or less in diameter—about the size of a grape), the researchers performed RF ablation on 21 breast cancers in 20 patients immediately before the patients underwent surgical lumpectomy (removal of the breast tumor and a small amount of surrounding tissue) or mastectomy (removal of the breast). After surgical excision, the specimens were evaluated by a pathologist to confirm whether RF ablation had eliminated all cancerous cells.

In all 21 cases, the target tumor that was seen on ultrasound was completely ablated with no adverse effects. In one of two patients who had received preoperative chemotherapy to shrink the tumor, residual microscopic cancer that did not show up on imaging was found around the ablated target.

Although the results of the feasibility and safety study were positive, this minimally invasive procedure is currently limited as a treatment because surrounding tissue is not removed from the tumor site with ablation. Therefore, physicians cannot test the tissue to be certain all cancer has been destroyed.

At A Glance

- Radiofrequency (RF) ablation of small breast cancers has been shown to be feasible and safe.
- RF ablation treats tumors with heat produced by electrical current.
- All tumors that were visible on ultrasound and targeted with RF ablation were completely ablated with no adverse effects.

"This is an experimental study, and additional long-term trials will be needed before RF ablation becomes available as an alternative to surgery in the treatment for early breast cancer," Dr. Fornage said.

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"Small (≤ 2 cm) Breast Cancer Treated with US-guided Radiofrequency Ablation: Feasibility Study."

Collaborating with Dr. Fornage on this study were Nour Sneige, M.D., Merrick I. Ross, M.D., Attiqah N. Mirza, M.D., Henry M. Kuerer, M.D., Ph.D., Beth S. Edeiken, M.D., Frederick C. Ames, M.D., Lisa A. Newman, M.D., Gildy V. Babiera, M.D., and S. Eva Singletary, M.D.

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