

Radiation at time of lumpectomy may offer faster, more precise treatment for breast cancer patients

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Northwestern Medicine physicians are currently utilizing a new treatment option for breast cancer that allows women to receive a full dose of radiation therapy during breast conserving surgery. Traditionally, women who opt to have a lumpectomy must first have surgery then undergo approximately six weeks of radiation. This schedule can be challenging for women who have busy schedules or do not have access to a center offering radiation therapy. In some cases, the demanding schedule causes women to not comply with the recommended course of treatment, increasing their risk for cancer recurrence. Intraoperative radiation therapy combines lumpectomy and the full course of radiation during a two and half hour operation.

"With this technique, the radiation oncologist will be in the operating room administering radiation to the tumor bed immediately following the surgeon's removal of the tumor," said William Small, Jr., MD, vice chairman radiation oncology at Northwestern Memorial Hospital and professor of [radiation oncology](#) at Northwestern University Feinberg School of Medicine. "Instead of waiting a month to start the radiation therapy, it will take place immediately. A patient will wake up from surgery and have received the full amount of radiation therapy that is typically administered over six weeks."

Currently, a [breast cancer](#) patient first sees a surgeon to remove the tumor and then is referred to a radiation oncologist for follow up

radiotherapy. Intraoperative radiation therapy allows physicians to deliver radiotherapy at the time of surgery directly to the area where the cancer was removed. Using a system called IntraBeam, the radiation oncologist is now able to be in the [operating room](#) with the surgical oncologist, delivering the entire dose of radiation during surgery. A large international [randomized trial](#) confirmed that delivering radiation at the time of [lumpectomy](#) was as effective in preventing breast cancer recurrence as whole breast radiation therapy in selected patients (WBRT).

Not all patients who choose lumpectomy comply with the recommended follow up treatment because of factors including time, money, distance and access to a treatment facility. Neglecting follow up radiation after lumpectomy can increase the risk of cancer recurrence. Intraoperative radiation significantly cuts treatment time and allows women to complete radiation and surgery at the same time.

"By eliminating the geographic and time constraints of traditional radiotherapy, intraoperative radiation can make breast conservation surgery a realistic option for more women," said Kevin Bethke, MD, surgical oncologist at Northwestern Memorial and assistant professor of clinical surgery at the Feinberg School. "Active women with busy jobs can choose lumpectomy and comply with the recommended radiation therapy, but limit the impact the treatment has on their lives."

Along with offering an expedited treatment schedule, intraoperative radiation therapy also has the potential for better cosmetic outcomes, including less scarring, and fewer side effects compared to those associated with WBRT. Skin reactions, including redness, rashes, and irritation, as well as more severe complications including fatigue, swelling, tissue stiffness and scarring are sometimes associated with traditional radiation therapy.

While initial findings indicate single-dose radiation is as effective as WBRT in limiting recurrence of breast cancer in selected patients, it is not an option for every breast cancer diagnosis. Currently, only women with early stage breast cancer are considered as candidates for intraoperative radiation therapy.

"This isn't a replacement for traditional breast cancer treatment, but for the right candidate it may be an attractive alternative," said Small. "This has potential to expand access to radiation therapy allowing more women to comply with the recommended course of treatment. Hopefully, with a more concise and convenient treatment available, a broader group of women will have the option to choose breast conserving treatment options."

The physicians hope that by offering intraoperative radiation therapy, they can help their patients effectively treat their cancer, but also do so in a manner that minimizes its impact on their daily lives. "A cancer diagnosis can be extremely stressful for a patient, so it's important that treatment is not," said Bethke. "With this new option, we're giving women a way to treat their disease while continuing to live a normal, active life."

Provided by Northwestern Memorial Hospital

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