Is Faster Breast Cancer Radiation Treatment as Effective?

A shorter course of higher-dose radiation treatment to part of the breast is showing promise in women with early-stage breast cancer who undergo breast-conserving surgery, says a study led by Hamilton Health Sciences researchers.

Accelerated partial breast irradiation (APBI) sees larger doses of radiation delivered to parts of the breast affected by cancer. This treatment takes place in 1 week or less, further reducing length of treatment from the standard treatment of 3-5 weeks.

The multi-center trial shows similar recurrence rates of breast cancer in patients treated by external beam APBI over the course of 1 week compared to whole breast radiation delivered over 3-5 weeks (Lancet 2019; doi: 10.1016/S0140-6736(19)32515-2).

“We wanted to do a study to see if we could shorten treatment as 3-5 weeks is not ideal for patients,” said first author Timothy Whelan, BM, BCh, MSc, Professor of Oncology at McMaster University and a radiation oncologist of Hamilton Health Sciences. He also holds a Canada Research Chair in Breast Cancer Research.

**Study Details**

The randomized controlled trial, called RAPID, occurred between 2006 and 2011 in 33 cancer centers across Canada, Australia, and New Zealand. The 2,135 patients were women aged 40 or older with ductal carcinoma or node-negative breast cancer which had been treated by breast-conserving surgery.

Approximately half of the patients were randomly assigned whole breast radiation, delivered once per day over 3-5 weeks. The other half received external beam APBI, considered to be the least invasive approach to partial breast irradiation, which was given twice a day over 5-8 days.

The study was long-term, with a median follow-up of 8.6 years. At 8 years, the risk of cancer recurrence in the breast was very low and similar for the two groups. For patients treated with APBI the risk was 3 percent and for patients treated with whole breast radiation the risk was 2.8 percent.

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However, his research team was surprised to find that, although less early toxicity within 3 months of treatment was observed with APBI, the twice-daily regimen was likely associated with higher late toxic effects and worse cosmetic outcomes. This included increased small blood vessels visible on the skin, and thickening of breast tissue related to radiation.

“About 13 percent of patients who had whole breast radiation had moderate toxicity, compared to 32 percent for those who had APBI,” said Whelan. “As well, about 16 percent more women treated with accelerated partial breast treatment didn’t feel their breast looked as good.

“Based on this, it is difficult to recommend the twice per day regimen at this time.” Whelan and his team are now conducting a clinical trial to examine whether once per day APBI with more time between treatments will have better outcomes.

“We’re looking at external beam accelerated partial breast irradiation with five treatments, but only once per day rather than twice,” he said. “The early results are very promising because we’re not seeing that toxicity and our goal is to examine that further.”

Adding that Latin music is his favorite genre, Malpica not only plays it, he dances it as well. “I love to salsa.”

Malpica is making the most of the life he’s been given. And though he spends most of his working time in a research lab, he said it is the time he spends with patients that is the best part of his career. “Once a week, I have clinic where I see lymphoma and leukemia patients, and that’s the most gratifying part of being an oncologist,” said the physician. “Cancer sucks. It really does. When I see new patients in clinic, I realize they are looking for hope that is sometimes difficult to find. In hematologic oncology, we often see patients for the length of their survival. It’s a lifelong relationship. We get to go beyond just being a doctor; we also get to be friends. That’s very, very special.”

Valerie Neff Newitt is a contributing writer.