

Shorter course of radiation treatment safe for breast cancer patients under 50

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A higher-dose, shorter form of radiation is safe, effective, and no more damaging to the breast tissue or skin of breast cancer patients under age 50 than it is in older patients.

This is the finding of a study led by researchers from Perlmutter Cancer Center at NYU Langone Health, and presented at the annual meeting of the American Society for Radiation Oncology (ASTRO) on Sept. 24 in San Diego.

The study results address two radiation therapy techniques used to reduce the recurrence of breast [cancer](#) in [patients](#) after surgery. The more conventional approach irradiates patients every day for six or seven weeks, while a newer technique - hypofractionated whole breast radiotherapy - gives patients higher doses over three to four weeks.

The newer technique is preferred in the field because it cuts the treatment time in half, and therefore reduces the burden on patients in terms of trips to the clinic and cost, say the study authors. The last consideration becomes particularly relevant with the cost of breast cancer care nationally estimated to reach \$158 billion by 2020.

Seminal studies more than a decade ago found the shorter technique to be as effective and safe as the longer schedule. However, because breast cancer is less common in women under 50, few younger patients were included in these studies, calling into question the applicability of their results to this group.

Also of concern to some physicians were "late side effects," say the researchers, such as hardening of the [breast tissue](#), breast shrinkage, and skin changes. Radiation treatment can cause such effects on the skin or breast tissue with resultant cosmetic consequences that emerge over time, including scarring and loss of skin elasticity. It was unclear whether these late effects might be more pronounced in younger patients who live longer.

Given a lack of evidence needed to dispel these concerns, 2011 ASTRO guidelines on hypofractionated whole-breast radiation recommended the shorter treatment course for qualified patients aged 50 or older, but not for younger patients.

"Our new study provides rigorous scientific evidence that hypofractionated radiation therapy is safe and effective in women under 50," says lead study author Naamit Gerber, MD, assistant professor of Radiation Oncology at NYU School of Medicine. "Based on this new evidence, it is important that the guidelines for hypofractionated radiation after lumpectomy change to include younger women."

According to the latest available statistics, an estimated 292,130 new cases of female breast cancer were diagnosed in 2015, 60,310 (21 percent) of which were in patients under age 50. Of women with stage I/II breast cancer, 49 percent receive lumpectomy followed by radiation, the majority of whom are candidates for whole [breast](#) hypofractionated irradiation.

"Based on these numbers, and should the guidelines be changed to recommend hypofractionation in women less than age 50, we estimate that the potential exists for tens of thousands of patients to receive this less burdensome form of radiation each year," says Gerber.

Open to Younger Patients

Perlmutter Cancer Center was uniquely equipped to answer the question of whether younger women could benefit from the newer method thanks to a research effort led by study author Silvia Formenti, MD, who at the time co-led the Breast Cancer Research Program at NYU Langone. Her team conducted four prospective studies over more than a decade looking at different hypofractionation regimens, studies that did not rule out enrolling younger patients, says Gerber.

The new study analyzed the long-term response to therapy, as well the clinician- and patient-reported cosmetic outcomes (cosmesis) in 348 women aged less than 50 treated between 2003 and 2015 as part of these four trials. All included [breast cancer](#) patients had stage 0, I or stage II disease and had undergone partial mastectomy. Cosmetic outcomes were measured by a standard tool called LENT-SOMA, which rates pain, swelling, scarring and other common effects of [radiation therapy](#) on a scale of one to four.

The research team found hypofractionated radiation to be safe and effective in younger patients, with 94.5 percent of them free of disease recurrence five years after treatment, and just 3.3 percent of patients experiencing severe (grade 3-4) late side effects. It also yielded good to excellent long-term cosmesis ratings in 92 percent of patients aged 50 years and younger, with a median follow-up of about three years after the completion of [radiation](#) treatment, says Gerber. Furthermore, there was also no difference between patients aged less than 40, when compared to patients aged 40 or more in long-term cosmesis.

"Our study shows that long-standing concerns about the safety of using this technique in younger patients, as well as late side effects, don't appear to be supported by the data," says Gerber.

Provided by NYU School of Medicine

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