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Does Mammography Benefit Women Treated for Breast Cancer at an Older Age?

New Study Finds Surveillance Mammography After Breast Cancer Treatment Remains High Irrespective of Life Expectancy

Abstract: Patterns of Mammographic Surveillance in Elderly Women with Breast Cancer

Columbia, MD, April 27, 2023—Annual mammography of women treated for breast cancer at an older age remains extremely common, even in patients with only a small risk of developing another breast cancer or with significant competing mortality risks due to advanced age and co-morbidities. These were the findings of a study presented this week at the American Society of Breast Surgeons Annual Meeting in Boston that examined the use of surveillance mammography and the risk of a second primary breast cancer in this elderly patient population. Surveillance mammography is imaging performed on women who have been treated for breast cancer in the past to look for a recurrence or new cancer.

“Ongoing surveillance mammography in these patients may lead to over-diagnosis and over-treatment of cancers that potentially would not harm patients if left untreated,” comments lead study author Elizabeth Berger, MD, MS FACS, Assistant Professor of Surgery, Yale University School of Medicine. “A positive or false positive finding may unnecessarily erode patient quality-of-life and incur costs to the patient and healthcare system without benefit. Our study is unique because it looked at surveillance patterns among older women grouped not by age but by estimated remaining life expectancy (LE). This is an important factor in determining the ultimate benefits of this care.”

“If an elderly woman is in poor health and has significant competing mortality risks compared to breast cancer, annual mammography may not be necessary,” she says. Dr. Berger points out that false positive results can create unnecessary stress and may prompt costly downstream procedures, including additional imaging and biopsies. Noting that breast cancer in elderly women is often indolent and slow-growing, she says that the disease may have no impact on women with shorter LEs.

“The risks and benefits of surveillance mammography including its downstream effects should be considered by both patients and their doctors together to create a shared decision plan,” according to Dr. Berger, who emphasizes that discontinuing mammography is an important but often challenging conversation.

The new study sought to characterize current mammography surveillance practice patterns across the U.S. for elderly women treated for breast cancers, taking LE into consideration. Researchers analyzed 44,475 women in the Surveillance, Epidemiology and End Results and Medicare registries from 2003 to 2007 who were 67 years of age or older at the time of diagnosis with a first, non-metastatic breast cancer. Thirty percent of the cohort was older than 80 years of age.

The women were followed from one year post-diagnosis until development of a second breast cancer, death or the study’s conclusion in 2017. LE estimates were based on age, sex and comorbidities. Primary endpoints were receipt of surveillance mammography and occurrence of a second primary breast cancer.

In the study cohort, 55% of women had at least one co-morbidity and 16% had three or more. Of these, 26% had a LE of less than five years, 36% were estimated at six to ten years, and 38% greater than ten years.

The incidence of developing a second primary breast cancer differed based on LE, with less than five years at 3.7%, six to ten years 4.9% and greater than ten years 7.6%. Significantly, 51% of women with a LE of less than one year received at least one mammogram within 12 months of death. In patients with a six to ten year LE, 82% received at least one mammogram and 62% of received five.

“For women with significant competing mortality risks unlikely to die of a breast cancer diagnosed at an older age, mammography brings little benefit,” says Dr. Berger. “Our study suggests the need for value-based and patient-centered stratification of older patients considered for mammography surveillance and development of a tool for shared decision-making between patient and physician.”

Patterns of Mammographic Surveillance in Elderly Women with Breast Cancer

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Background/Objective

Controversy exists around appropriate mammographic surveillance among elderly women with a history of breast cancer, who are at elevated risk of a second breast cancer diagnosis. Risks and benefits of surveillance may vary based on patient characteristics, and when weighing the value of identifying screen-detected cancers in women who may have shorter life expectancy. We sought to characterize the use of surveillance mammography and risk of subsequent breast cancer in elderly women with breast cancer by life expectancy (LE).

Methods

We identified women aged 67 years or older who were diagnosed with a first, non-metastatic breast cancer from 2003-2007 using the SEER-Medicare registry data. We followed female beneficiaries from 1 year post diagnosis until occurrence of a second primary breast cancer, death, or end of follow up in 2017. LE estimates were established based on age, sex, and comorbidities. The primary outcomes were receipt of surveillance mammography over time and diagnosis of a second primary breast cancer.

Results

44,475 women comprised the study cohort; 30% of the cohort was over the age of 80 years old. Overwhelmingly, breast cancer diagnoses were early-stage and of favorable biology; stage 1 or 2 breast cancers comprised 74% of the cohort and 72% of women had a hormone receptor positive breast cancer. A majority of women (55%) had at least one co-morbid condition with 16% having three or more. Life expectancy estimates one year after diagnosis were as follows: 26% LE <5 years, 36% LE 6-10 years, and 38% LE >10 years. The use of mammography was common amongst all LE groups. Notably, among women with <1 year life expectancy, 51% received at least 1 mammogram within 12 months of death. In women with 6-10 years of LE, 82% of women received at least 1 mammogram and 62% of women received 5 mammograms. The cumulative incidence of developing a second primary breast cancer differed based on life expectancy and molecular tumor subtype; LE <5 years: 3.7% (95% CI 3.2-4.3); LE 6-10 years: 4.9% (95% CI 4.5-5.3); LE >10 years: 7.6% (7.2-7.9%). In women with LE <5 years and a triple negative breast cancer, the cumulative incidence of a second primary was 4% compared to 3% in women with a hormone receptor positive breast cancer. Women with a LE of >10 years and a triple negative breast cancer had a cumulative incidence of 9.2% compared to 7% in women with a hormone receptor positive breast cancer and LE of >10 years.

Conclusions

Utilization of surveillance mammography remains high among elderly women with a history of breast cancer, even in women having short life expectancies. Risk of developing a second primary breast cancer significantly differed based on estimated life expectancy and breast cancer subtype. Consideration of ongoing surveillance mammography among elderly women after breast cancer warrants valued-based and patient centered stratification.