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Patient surveillance after initial breast cancer therapy: variation by physician specialty

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Abstract

BACKGROUND: American Society of Clinical Oncology (ASCO) guidelines recommend only office visits and mammograms as the primary modalities for patient surveillance after treatment for breast carcinoma. This study aimed to quantify differences in posttreatment surveillance among medical oncologists, radiation oncologists, and surgeons.

METHODS: We e-mailed a survey to the 3,245 ASCO members who identified themselves as having breast cancer as a major focus of their practices. Questions assessed the frequency of use of 12 specific surveillance modalities for 5 posttreatment years.

RESULTS: Of 1,012 total responses, 846 were evaluable: 5% from radiation oncologists, 70% from medical oncologists, and 10% from surgeons; 15% were unspecified. Marked variation in surveillance practices were noted within each specialty and among specialties.

CONCLUSION: There are notable variations in surveillance intensity. This suggests overuse or underuse or misuse of scarce medical resources.

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Breast carcinoma is the most commonly diagnosed cancer in the United States except for nonmelanoma skin cancer. It is a leading cause of cancer-related death in women worldwide. It is estimated that over 1.1 million men and women were diagnosed with breast cancer and that over 400,000 women died from it worldwide in 2002.[1] In the United States, the relative 5-year survival rate for breast cancer was 89% for the 1996 to 2004 period.[2] There are more than 2 million breast cancer survivors in the United States at present, and posttreatment surveillance is warranted for essentially all of them.[3] A steady increase in the number of breast cancer survivors is projected. This will increase costs and place a significant burden on those responsible for posttreatment surveillance.[3]

In wealthy countries, care of patients with potentially curable breast cancer is fairly well standardized. Two large, well-designed, randomized controlled trials regarding posttreatment breast cancer surveillance have been published.[4,5] In both trials, surveillance with annual

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mammograms and regular clinical visits alone was compared with an intensive surveillance strategy with additional tests such as chest x-rays, bone scans, and liver ultrasonography. Both trials showed no significant difference in 5-year mortality rates between the less intensive and more intensive surveillance groups. Because the available evidence shows that additional surveillance tests do not improve outcomes, the American Society of Clinical Oncology (ASCO) guidelines currently recommend only office visits and mammograms for surveillance.[6] Similar recommendations have been published by other authoritative sources.[7–9]

The primary purpose of this study was to measure the intensity of patient surveillance strategies used by expert clinicians after potentially curative treatment for breast carcinoma. We have previously documented marked variation in surveillance strategies among ASCO members who have breast cancer treatment as a primary clinical focus.[10] In addition, these experts often recommend diagnostic tests not recommended by the ASCO for surveillance of asymptomatic patients with no worrisome findings on physical examination after curative-intent therapy for breast carcinoma. This study also sought to quantify a likely source of variation in posttreatment surveillance intensity, namely, the variation among medical oncologists, radiation oncologists, and surgical oncologists.

Methods

We designed a survey instrument with 4 vignettes depicting idealized generally healthy women with breast cancer of differing prognoses. In each vignette, the patient described had received curative-intent initial treatment but had a different American Joint Commission on Cancer stage, burden of disease, or biomarker profile: stage 0 (TisN0M0), estrogen receptor (ER) positive, progesterone receptor (PR) positive ductal carcinoma in situ; stage IIA (T2N0M0), ER positive, PR positive, human epidermal growth factor receptor 2 (*HER2/neu*) nonamplified invasive ductal cancer; stage IIA (T1N1M0), ER negative, PR negative, *HER2/neu* nonamplified invasive ductal cancer; and stage IIIA (T3N2M0), ER positive, PR positive, *HER2/neu* amplified invasive ductal cancer.

The survey featured questions based on these vignettes designed to quantify the surveillance practices of ASCO members. Using an online web-based technique (surveymonkey.com), the survey was e-mailed to the 3,245 ASCO members who identified themselves as having breast cancer as a major focus of their practices. Each recipient was asked to indicate the number of annual office visits and surveillance tests he or she recommended for his or her own patients during posttreatment years 1 to 5 for each vignette. The list of 12 modalities given on the survey was compiled after a thorough review of the relevant literature and an informed evaluation by local experts indicated that the list was comprehensive (Table 1). Tests performed in the office and tests routinely performed in the hospital outpatient setting were all included. (The survey instrument is available on request from margenthale@wudosis.wustl.edu.)

On receipt of completed surveys, responses for all 4 vignettes were entered into a computer program (SAS 9.2, Enhanced Logging Facilities, Cary, NC) for statistical analysis. Mean, standard deviation, median, and range of recommended frequency of use were calculated for each surveillance modality in each postoperative year for data from all 4 vignettes as a group. Repeated-measures analysis of variance was used to judge whether the practices of medical oncologists, radiation oncologists, and surgical oncologists differed significantly. This method of statistical analysis was chosen because it can be used when the same variable has been measured under different conditions on the same subjects.

Table 1 List of modalities offered on the survey

Survey item	Post-op year 1	Post-op year 2	Post-op year 3	Post-op year 4	Post-op year 5
Office visit (including breast examination)					
Complete blood count					
Liver function tests					
Serum CA15-3 level					
Serum CEA level					
Diagnostic mammogram					
Diagnostic breast ultrasonography					
Breast MRI					
CT of abdomen/pelvis					
CT of chest					
Bone scan					
Whole body PET or PET-CT scan (fluorodeoxyglucose)					

This is how the questionnaire appeared on our survey instrument. A drop-down box of numbers was provided for each cell in the matrix to indicate the number of times a particular modality was recommended in a particular posttreatment year for 1 of the 4 vignettes in our survey.

CA = cancer antigen; CEA = carcinoembryonic antigen; CT = computed tomography; MRI = magnetic resonance imaging; PET = positron emission tomography.