CORRESPONDENCE

Re: Detection of Ductal Carcinoma in Situ in Women Undergoing Screening Mammography

I was surprised to read that Ernst et al. (1) thought that they were the first to discover that the rate of screen-detected ductal carcinoma in situ (DCIS) increases with age while DCIS accounts for a progressively smaller percentage of the total cancers detected (i.e., invasive plus DCIS). We actually made this observation in 1996 when we were discussing the artifactual results that are created by grouping women aged 40–49 years and comparing them with all women aged 50 years and older (2). One explanation for these rates of discovery of DCIS and invasive cancers is that DCIS is the precursor of many invasive cancers. It would therefore stand to reason that DCIS would form a higher percentage of the total number of cancers among younger women, but as these DCIS lesions become invasive, the percentage of total cancers that are DCIS would decrease. The absolute increase in the number of DCIS lesions that occurs with increasing age likely reflects the greater chance for malignant transformation that occurs with DNA “aging.”

In the same issue of the Journal, the Stat Bite, unfortunately, reflects the main point of our 1996 article (2). The Stat Bite is misleading by suggesting that there is a large increase in breast cancer incidence at the age of 50 years by comparing the incidence of breast cancer among women aged 50 years and older with the total incidence. This use of age 50 years as a cutoff suggests that the incidence of breast cancer must be low among women aged 49 years and younger. However, as we have previously pointed out (2–4), it is greatly misleading to group women aged 50 years and older as if they are a uniform group and to compare them with women aged 49 years and younger as if they were a uniform group. If age groups must be made, then the age increments should be the same. Thus, if the Stat Bite had compared women by decade of age, it would have shown a steady increase in breast cancer incidence with age. The Journal should cease giving the unsupportable impression that the age of 50 years has some biologic or screening significance. There are no data that show any abrupt change in any parameters of mammographic screening (e.g., recall rates, rates of recommendation for biopsy, percentages of biopsies yielding cancers, and cancer detection rates) that occurs at the age of 50 years. The age of 50 years is merely an arbitrary age chosen by health planners and has no medical or scientific importance.

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REFERENCES


Note

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RESPONSE

Contrary to the suggestion by Dr. Kopans, we did not indicate that we were the first to observe that ductal carcinoma in situ (DCIS) rates increase with age while the proportion of all breast cancers that are DCIS declines with age. Although we cited a number of previous reports that provided DCIS rates in screened populations and the percentage of DCIS cases among all breast cancers, prior reports (1–6) have not stressed the difference in the direction of DCIS rates and percentages with age. The cited article by Kopans et al. (7) did not address the same issues that we did. Percentages of DCIS in their article were based on 4778 biopsies performed among women undergoing mammography. In contrast, our data were based on all women undergoing screening mammography, not just women having biopsies, which enabled us to produce population-based measures. Analyzing data from 653,833 screening mammograms for positive and negative mammograms separately, we reported data on DCIS detection rates by age and the percentage of all breast cancers that were DCIS. Thus, the finding of Kopans et al. (7) that the percentage of biopsies that proved to be DCIS increased with age is not the same as our finding that the rate of DCIS per 1000 mammograms increased with age.

The decreasing proportion of DCIS cases among all breast cancers with age in both of our studies may represent progression to invasive disease with age; however, neither their data nor ours can address that hypothesis directly. Were the progression hypothesis correct, one might have expected declines (over time) in invasive breast cancer incidence following the observed increases in DCIS incidence, similar to the declines in invasive cervical cancer that followed widespread use of the Pap test. However, such declines in invasive breast cancer incidence have not occurred; thus, a more direct test of the progression hypothesis is needed. Our point in contrasting the different age trends for proportions and rates of screen-detected DCIS was to illustrate the inappropriate-ness of concluding that risk of DCIS is greater in younger women simply because the proportion of all breast cancers that is DCIS decreases with age.

Dr. Kopans is correct in commenting that there is no discontinuity in the incidence of cancer at age 50 years, just as there is no discontinuity at any other age where one may contemplate starting screening (e.g., age 40 years). However, Dr. Kopans is incorrect in assuming that there is no scientific rationale underlying decisions about the optimal age to begin screening. The overall breast cancer rate (i.e., DCIS and invasive) per 1000 screens and the cancer detection rate (i.e., positive screen) per 1000 screens by age, which are based on data from the population-based Breast Can-
circles = overall cancer rate per 1000 screening mammograms. Open circles = screen-detected cancer rate per 1000 screening mammograms. B) Sensitivity of screening mammography by age. Smoothed loess curves are fit to the points to show the trends.

Fig. 1. A) Breast cancer incidence rate and screen-detected cancer rate by age per 1000 screening mammograms. Filled triangles = overall cancer rate per 1000 screening mammograms. Open circles = screen-detected cancer rate per 1000 screening mammograms. B) Sensitivity of screening mammography by age. Smoothed loess curves are fit to the points to show the trends.

References


Notes

Editor’s note: The incidence and mortality rates used in the Stat Bite (1) are taken directly from Table IV-4 of The National Cancer Institute’s Cancer Statistics Review: 1973–1999 (2). That table reports Surveillance, Epidemiology, and End Results (SEER)1 Program incidence and U.S. death rates for breast cancer for all women, women younger than 50 years, and women aged 50 years and older. The Stat Bite based on this data shows trends in incidence and mortality over time as reported by SEER. Age-specific rates, which were not the subject of this Stat Bite, are available in Tables IV-2 and IV-3 of the Cancer Statistics Review (2).


SEER is a set of geographically defined, population-based, central cancer registries in the United States, operated by local nonprofit organizations under contract to the National Cancer Institute (NCI). Registry data are submitted electronically without personal identifiers to the NCI on a biannual basis, and the NCI makes the data available to the public for scientific research.

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