

Benefits of mammograms under fire

Nearly one-third of breast cancers identified by screening healthy US women need not have been treated, study finds.

- [Meredith Wadman](#)

21 November 2012

The routine use of mammography to screen healthy women for breast cancer is leading to the widespread detection and treatment of tumours that would never have caused symptoms, a study in the *New England Journal of Medicine* asserts today¹. The results inject yet another dose of controversy into an area that is already hotly debated.

The study examined the effects of mammography screens on breast-cancer incidence between 1976 and 2008 in US women over 40. The authors conclude that more than one million women diagnosed with the disease would never have developed symptoms. In 2008 alone, they estimate, more than 70,000 women had such breast tumours diagnosed, accounting for 31% of all breast cancers diagnosed in women 40 and older.



Routine mammogram screening reduces deaths from breast cancer, but a new study finds it can also result in detection of tumours that might not need treatment.

BSIP/Phototake

“Our study raises serious questions about the value of screening mammography,” the paper concludes. “The harm of overdiagnosis [is] probably larger than has been previously recognized.” The diagnosed women, the authors add, have undergone treatments involving surgery, radiation, hormones and chemotherapy “for abnormalities that otherwise would not have caused illness”.

The study does not address the situation of women who have an inherited genetic predisposition to breast cancer. Women in this group tend to get an aggressive form of the disease at much younger ages, and need to be actively screened using mammography.

Screening storm

The findings add to the ongoing controversy over breast-cancer screening. In 2009, the US government's Preventive Services Task Force caused an uproar when it recommended against routinely screening women in their 40s. Last month, a review commissioned by the UK Department of Health found that there was overdiagnosis of breast cancer, but concluded that the country's national screening programme was still worthwhile².

The latest study¹ has sparked both praise and harsh criticism. The American College of Radiology in Reston, Virginia, which represents the physicians who interpret mammograms, called it "deeply flawed and misleading". But Frances Visco, president of the National Breast Cancer Coalition in Washington, DC, which has concluded that breast cancer screening does not reduce significantly mortality from the disease, says the benefits of mammography have long been overstated. "This is a very well-done study looking at three decades of data and it has confirmed what a number of studies from other countries have shown: That we really haven't reduced late stage, metastatic diagnoses through screening."

The study authors — oncologist Archie Bleyer of the St Charles Regional Cancer Center in Bend, Oregon, and H. Gilbert Welch, a professor of medicine at Dartmouth College's Geisel School of Medicine in Hanover, New Hampshire — examined the change in incidence of early-stage and late-stage breast cancer after large numbers of women began to have screening mammograms in the mid-1980s.

As expected with the advent of a widespread screening programme, they found that diagnoses of early-stage disease more than doubled during the three decades, with an increase of 122 cases for every 100,000 women. The authors argue that if the screening was working as intended and stopping those cancers from progressing to a more harmful disease, then one would expect to see a roughly equivalent decrease in late diagnoses.

Instead, they found that, assuming a steady underlying rate of breast cancer incidence, the number of late-diagnosed cancers decreased by only 8 cases per 100,000 women. Their inference: many of the early cases being detected through screening would not have gone on to cause symptomatic disease. They also conclude that mammography's contribution to the sharp decline in breast-cancer mortality rates during the same period must therefore be small.

Wider worries

Cancer biostatistician Colin Begg, who is chairman of the Department of Epidemiology and Biostatistics at the Memorial Sloan-Kettering Cancer Center in New York and was not involved in the study, says that there is unquestionably a large number of excess diagnoses due to screening. But, he adds, the study is on "much shakier ground" in minimizing mammography's contribution to declining mortality.

"This is a critical issue, since I suspect women contemplating screening are much more concerned about preventing death from breast cancer than they are about the impact of a false-positive diagnosis," says Begg. He adds: "The positive impact of screening on mortality has been studied in numerous randomized screening trials, and they provide much more compelling evidence on this issue than this descriptive, retrospective analysis."

The paper "is going to lead women to think that mammography is terrible", says Daniel Kopans, a professor of radiology at Harvard Medical School in Boston, Massachusetts, who helped to draft the statement by the American College of Radiology. "Some women will avoid

screening as a result, maybe a lot of women. And they will die.”

“We are not against screening,” Bleyer says. “It does save lives. But a need to be more concerned about the harms [of screening] becomes more apparent from the results of our study.”

Nature

doi:10.1038/nature.2012.11866

References

1. Bleyer, A. & Welch, H. G. N. Engl. J. Med. 367, 1998–2005 (2012).
 - [Article](#)
2. Independent UK Panel on Breast Cancer Screening Lancet 380, 1778–1786 (2012).