



MORE ON: CONTROVERSIES IN SCREENING MAMMOGRAPHY

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BACKGROUND

In the previous issue of the journal, I provided a detailed analysis regarding controversies in screening mammography.¹ After that article went to press, additional studies were published that warrant further discussion.

The first study, from Norway, examined the mortality from breast cancer during the gradual implementation of screening mammography between 1996 and 2005 for women between 50 and 69 years old.² Mortality was calculated for the women who underwent screening and for a control group who did not undergo screening because mammography services were not yet offered in those areas of the country. Also utilized were two historical comparison groups comprised of screened and unscreened women in these countries during the prior decade from 1986 to 1995.

The mortality difference among these four groups was calculated for the nearly 40,000 women who developed breast cancer. There was a 28% of mortality rate in the control group compared with an 18% mortality rate in those women screened with mammography, or a 10% relative reduction of mortality in the screened group. Put another way, the total mortality in the screened group was 7.2 deaths/100,000 patient-years. However, in a separate population of women with breast cancer who were between the ages of 20 and 49 or over 70 but were not eligible for the screening program, there was a reduction in mortality of 4.8 deaths/100,000 patient-years. Thus, among women who were invited to participate in the screening program, it appears that the screening program accounted for only 2.4 deaths per 100,000 patient-years (7.2 minus 4.8), or one third of the total reduction in mortality. The benefit in the unscreened patients was thought to be related to a multidisciplinary approach to treatment. Moreover, women over the age of 70 years who were exposed to the program's multidisciplinary teams without undergoing mammography had an 8%

reduction in breast-cancer mortality. Thus, the authors conclude that relative reduction in mortality due to screening mammography alone could have been as low as 2% in that group.

A week later, the neighboring researchers in Sweden published a much larger study of over 1 million women between the ages of 40-49 who underwent screening mammography.³ Screening mammography in Sweden for this cohort was also introduced in a staggered manner, so that women of this age group were invited for screening mammography in some counties but not in others. The mortality from breast cancer was examined in both groups, and the overall net reduction in mortality in those women screened in their 40's was 29%. (For additional details of this study's methods and results, please see the accompanying article by Alan Peterson, MD.⁴)

DISCUSSION

There are a number of fundamental similarities and differences between these two studies:

1. Both studies describe observational findings rather than those gathered from randomized controlled trials.

2. Both studies predate the age of digital mammography. There have been no good studies of screening with the use of digital mammography, a technique known to improve cancer diagnosis by improving the conspicuousness of lesions.

3. The Norwegian data are based on a much smaller population, and the groups under 50 and over 70 used in the analysis are not truly comparable. I previously discussed evidence that younger women present with more aggressive disease than older women, which makes comparisons of mortality rates between groups of younger and older women fraught with difficulties.¹

4. The most significant limitation of the Norwegian study is the very short follow up of only 2

See accompanying commentary by Dr. Alan Peterson in this issue.

years. Modern breast cancer treatment has altered the natural history of the disease, and an increasing number of women are living longer after the diagnosis. If a metric such as mortality is used, but the average follow up is only 2 years, there is simply not enough time to detect any significant change in life expectancy with multidisciplinary treatment for breast cancer.

5. The Swedish data, which demonstrated a significant benefit for screening mammography, while not a randomized controlled trial, are far more robust with respect to the number of women involved (over 1 million), and the average length of followup (16 years). Furthermore, unlike the controversial USPSTF (U.S. Preventive Services Task Force) recommendations which I discussed previously,¹ the Swedish data represent a real life scenario and not computerized modeling based on risk/benefit ratios and a meta-analysis.

Finally, it must be said that the use of mortality from breast cancer as an end point is a significant limitation not only of both these studies, but of many other studies used in the USPSTF meta-analysis. In this era of more sophisticated treatment, the cost to treat early rather than advanced disease, as well as the morbidity associated with early versus advanced disease, are not examined in any of these studies. The goal of screening mammography is to diagnose early stage subclinical disease before it becomes more serious disease and to detect this disease when it is fully curable. This very issue was recently evaluated by researchers at

the London Breast Institute (U.K.) , who recently presented data on women age 40-50 with breast cancer, stratifying them according to their screening intervals. The researchers found that 19% of women who had been screened within one year had a mastectomy, as opposed to 46% of those who did not have a mammogram within the previous year. The authors concluded that regular screening mammograms lead to diagnosis of early stage breast cancer, which can be treated conservatively and less aggressively; in contrast, infrequent or absent mammographic examinations among 40-50 year old women lead to advanced disease, necessitating a more aggressive surgical approach.⁵

CONCLUSIONS

Despite the ongoing controversy, the debate about screening mammography is far from settled. The battle continues, but substantial new data still indicate that mammography saves lives and can detect breast cancers at a subclinical stage, thus minimizing the morbidity and mortality associated with diagnosis of disease at a more advanced stage. As I recommended in my original article, women of average risk for breast cancer need to continue annual screening mammograms beginning at age 40, and continue with monthly breast self examinations, and an annual clinical evaluation of the breasts. Women with increased risk need a more aggressive screening approach as previously discussed in my original article.

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