



Bulletin No. 15

June 29, 1994

Mammography Screening in Women 40 to 49 Years Old Benefits Unproven

Mammography is a beneficial routine screening procedure to detect breast cancer in asymptomatic women 50 years and older⁽¹⁾. Mammography is useful as a diagnostic test for women of any age who have signs or symptoms suggestive of breast cancer. Consensus also exists that mammography screening for women under 40 years is not warranted, because baseline mammography does not improve diagnosis, treatment, morbidity, and mortality⁽²⁾.

If routine mammograms are clearly beneficial in women age 50 and over, but unwarranted in women under 40 years old, what should be done for women between the ages of 40 and 50 years of age?

Results of Randomized Studies on Breast Cancer Screening

Breast cancer screening studies have been conducted for more than 30 years. Nearly 500,000 women participated in eight major randomized controlled studies which included mammography as a screening test. Seven of the studies included women 40-49 years old⁽³⁻⁹⁾.

Methodologies in each of these seven studies have been criticized. Criticisms include: randomization variability, with some studies using cluster samples, and others using volunteers; compliance variability from 61% to 100%; contamination of the control group through screening outside of the trial; quality and frequency of breast screening; adequacy of follow-up which limited the ability to combine study results; determination of outcome incompleteness in determining the true underlying cause of death in some studies; magnitude of difference variations which involved the size of the effect the trials look for and the effect found; and limitations in ability to generalize results to all women.

A meta-analysis of these studies investigated the effectiveness of mammography screening on women ages 40-49 years⁽¹⁾. Randomized trials showed no benefit to women 40-49 years old who received mammography screening 5 to 7 years after entry, uncertain or marginal benefit 10 to 12 years after entry, and an unknown benefit beyond 12 years. Results demonstrated remarkable consistency despite the fact that the studies were conducted at different times, in different countries, and with varying screening intervals and methodologies. Outcomes of women aged 50-69 years in these same studies, however, consistently demonstrated a strong benefit to mammography screening with a decrease in mortality of 30% at 10-12 years after study entry.

Problems of Screening Mammography in Women 40-49 Years Old

Negative consequences of screening mammography in women 40-49 years old include more false negatives and false positives than in women 50 years and older. A recent study of 31,813 women, found that women under 50 years old will have approximately 2.5 times as many biopsies and three times as many diagnostic procedures for every cancer diagnosed compared to women 50 years and older⁽¹⁰⁾. It is estimated that of every 1000 women under 50 years old who are screened with mammography over a period of ten years, 700 will require a diagnostic procedure to detect fewer than 15 breast cancers, and seven malignancies will be missed entirely⁽¹¹⁾. Detection and subsequent treatment of lesions that may never progress to clinical disease have significant implications. Other important issues related to these procedures encompass economic, social and emotional costs.

There are several reasons for the lack of sensitivity of mammography in women 40-49 years old. These include lack of contrast between normal glandular tissue and tumors, breast density, differences in fat content of the breast, and possibly, biologic differences in the cancers that occur at different ages and the cancers' response to treatment.

Conclusion

Despite attempts to improve current imaging technologies, at the present time the use of mammography as a routine screening tool for asymptomatic women with no specific risk factors between the ages of 40 to 50 years remains unproven.

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