

Review: Insufficient evidence exists for screening mammography in women 40 to 49 years of age

Ringash J, with the Canadian Task Force on Preventive Health Care. Preventive health care, 2001 update: screening mammography among women aged 40-49 years at average risk of breast cancer. CMAJ. 2001 Feb 20;164:469-76.

QUESTION

Does screening mammography reduce breast cancer mortality in women 40 to 49 years of age who are at average risk for breast cancer?

DATA SOURCES

Studies published from 1966 to January 2000 were identified by searching MEDLINE and CANCERLIT. Bibliographies of relevant papers were also reviewed.

STUDY SELECTION

Randomized controlled trials (RCTs) or meta-analyses, including all eligible RCTs were selected if they included women 40 to 49 years of age who were at average risk for breast cancer, assessed women by screening mammography alone or in combination with clinical breast examination (CBE), and had breast cancer mortality as a primary outcome. Studies were excluded if they had < 10 years of follow-up or < 90% follow-up.

DATA EXTRACTION

Data were extracted on the sample, method of randomization and analysis, years of screening, regimen and interval, mammographic views, radiation dosage, blinding, contamination, and patient compliance. Evidence was systematically assessed using the methods of the Canadian Task Force on Preventive Health Care.

MAIN RESULTS

7 RCTs and 6 meta-analyses were included in the analysis. Only 2 of the 7 RCTs found that screening mammography reduced the risk for breast cancer mortality (Table). Similarly, only 1 of the 6 meta-analyses found that screening reduced the risk for breast cancer mortality (relative risk reduction 18%, 95% CI 5% to 29%, number needed to treat 1540 for a mean follow-up of 12.7 y).

CONCLUSION

Insufficient evidence exists on the effectiveness of screening mammography for women

Individual trials of screening mammography vs control for breast cancer mortality*

Trial	Number of patients	Follow-up	RRR (95% CI)	NNT for 10 y
HIP	29 133	18 y	20% (-11 to 47)	Not significant
Malmö	25 770	10 to 15.5 y	40% (11 to 55)	500
Two County	35 448	13 y	10% (-41 to 46)	Not significant
Edinburgh	21 774	10 to 14 y	20% (-32 to 49)	Not significant
Gothenburg	25 941	10 y	40% (4 to 69)	782

		RRI (CI)	NNH for 10 y	
NBSS-1	49 430	10.5 y	10% (-17 to 56)	Not significant
Stockholm	21 950	11.4 y	10% (-46 to 117)	Not significant

*Edinburgh = Edinburgh Randomized Trial; Gothenburg = Gothenburg Breast Screening Trial; HIP = Health Insurance Plan Trial; Malmö = Malmö I and II Mammographic Screening Trials; NBSS-1 = Canadian National Breast Screening Study 1; Stockholm = Stockholm Breast Cancer Screening Trial; Two County = Swedish Two-County Trial. Other abbreviations defined in Glossary; RRR, RRI, and CI calculated from data in article.

40 to 49 years of age who are at average risk for breast cancer.

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COMMENTARY

Ringash and the Canadian Task Force on Preventive Health Care conclude that insufficient evidence exists to advise either for or against universal breast cancer screening with mammography in women 40 to 49 years of age who are at average risk for disease. This is a change from the 1994 recommendation, which stated that fair evidence existed to exclude screening mammography from the periodic health examination for women 40 to 49 years of age (1). The most recent meta-analysis of all the trials included in the review by Ringash and colleagues reported a statistically significant 18% reduction in mortality from breast cancer in primarily premenopausal women 40 to 49 years of age who received screening (relative risk 0.82, 95% CI 0.71 to 0.95) (2).

It is unclear why the benefit from mammography is lower in younger women than in women over 50 years of age (18% vs 30% to 50%, respectively) (3). The difference may be related to the decreased sensitivity of the test in the younger age group and a greater number of false-negative results. Future studies with adequate sample sizes, longer follow-up times, and more frequent screening intervals (e.g., ≤ 1 y rather than 1.5 or 2 y) may eliminate this apparent discrepancy (4).

The meta-analysis cited by Ringash and colleagues reported that the

number needed to screen for 1 year to prevent 1 additional death from breast cancer in this age group is 19 356 (2). If all women 40 to 49 years of age in the United States in the year 2000 (21 675 000 women, U.S. Census 2000 estimate) were screened, approximately 1120 lives would be saved. This potential benefit, as well as the increased probability of false-positive results, personal risk indicators, and personal preferences, should be considered when a premenopausal woman discusses her options for breast cancer screening with her physician.

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