

Mammography screening among women aged 40–49 years shows no benefit

Miller AB, To T, Baines CJ, Wall C. The Canadian National Breast Screening Study-1: breast cancer mortality after 11 to 16 years of follow-up. A randomized screening trial of mammography in women age 40 to 49 years. *Ann Intern Med* 2002;137:305-12.

Background: Although screening mammography appears to reduce breast cancer mortality among women 50 years and over, the benefits for women aged 40–49 remain murky. Most trials were of short duration, and critics point out the obvious that any mortality benefit would be revealed only with longer follow-up.

The first report of the Canadian National Breast Screening Study-1 (CNBSS-1), involving women 40–49 at entry, showed no significant difference in breast cancer mortality between those in the screening mammography group and those in the usual care group after 7 years' follow-up.¹ In the latest report Miller and colleagues look at the data after 11–16 years' follow-up.

Question: Does combined screening (with longer follow-up) of women aged 40–49 years with annual mammography and clinical breast examination lead to a reduction in breast cancer mortality compared with a single breast examination and usual care thereafter?

Design: Women aged 40–49 were recruited between January 1980 and March 1985. None had a previous diagnosis of breast cancer. After an initial clinical breast examination and instruction on breast self-examination participants were randomly assigned to receive either annual screening with mammography and clinical breast examination ($n = 25\ 214$) or usual care ($n = 25\ 216$). The primary outcome was death from breast cancer. Follow-up was done through annual questionnaires sent to the participants and their physicians and by record linkages to the National Cancer Registry and the Canadian Mortality Database.

Results: Women were followed for 11–16 years (mean 13). In the mammography group 62% of the women underwent all 5 annual screenings; the remainder, recruited later, underwent 4. With follow-up complete to June 30, 1996, slightly fewer women in the screened group than in the usual care group died of breast cancer (105 v. 108). Restricting analysis to deaths from breast cancer diagnosed in the first 5 years after entry, more women in the screened group than in the usual care group died (64 v. 60; cumulative rate ratio 1.07, 95% confidence interval [CI] 0.75–1.52).

Invasive breast cancer was more common in the screened group than in the usual care group at 5 years' follow-up (290 v. 237 cases). This difference was also evident at 14 years' follow-up (592 v. 552). Tumours detected through screening tended to be smaller than those found in the usual care group: at the first screening 81% of tumours were less than 20 mm in diameter, as compared with 50% in the usual care group).

Commentary: The latest CNBSS-1 data continue to show no benefit of breast cancer screening for women aged 40–49. However, a recent meta-analysis of data from 8 randomized controlled trials of screening mammography among women 40–49 at entry, with follow-up of 12.7 years on average, showed a reduction of 18% in breast cancer mortality among screened women compared with those in control groups (breast cancer mortality rate ratio 0.82; 95% CI 0.71–0.95).²

What could explain this discrepancy? Miller and colleagues mention the controversy over randomization in the CNBSS trials³ and the inferior quality of mammograms taken 20 years ago compared with those obtained with more recent technology. They also mention the problem of contamination in the usual care group: 26% of those women had 1 or more mammograms. It is unclear whether they were for screening or for an evaluation of suspected breast cancer after physical examination. The authors also analyzed the data by removing

women in both groups who had cancer detected by physical examination alone at enrolment; the results did not change.

Implications for practice: The debate about mammography for women aged 40–49 continues. There is even renewed debate about benefits for older women.⁴ The US Preventive Services Task Force recommends screening mammography, with or without clinical breast examination, every 1–2 years for women 40 and older.⁵ The Canadian Task Force on Preventive Health Care states that screening mammography for women 40–49 is not supported by available evidence⁶ and that teaching women of any age in the techniques of breast self-examination is harmful.⁷ Clinicians and women will have to make up their own minds, balancing the facts of the high frequency of breast cancer and the known hazards of screening (increased frequency of surgical procedures and, if cancer is found, living with the knowledge of having cancer) with the increasingly doubtful benefits of screening.

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