Clinical Practice Assessment

Mammography screening in women aged 40-49

Clinical Question:
Does mammography screening in women ages 40 to 49 significantly reduce mortality from breast cancer?

Bottom Line:
The two randomized trials specifically designed to evaluate breast cancer screening in women 40 to 49 years old both reported no statistically significant effects on breast cancer mortality or on total mortality.

Synopsis:
Early studies of mammography screening were not designed to distinguish effects in age subgroups and all post hoc analyses failed to show statistically significant effects of mammography screening on death from breast cancer in women aged 40-49 at randomization. The Miller (1) and Moss (2) studies are the only two randomized trials to specifically address mammography in women aged 40-49.

Miller et al. obtained informed consent and individually randomized 50,430 Canadian volunteer women 40 to 49 years of age to receive either annual mammography, breast physical examination (BPE), and breast self-examination (BSE) (n=25,214) or usual community care and annual follow-up (n=25,216). Prior to randomization, all participants received BPE and instruction in BSE. After an average of 13 years of follow-up there were 84 breast cancer deaths in the mammography group and 75 in the usual care group (RR 1.12, 95% CI, 0.82 to 1.53). Total mortality was identical (413 in each group). The mammography group underwent 4 times as many biopsies as the usual care group.

Moss et al. obtained lists of patients from English, Welsh and Scottish general practice databases and randomized the names of 40 year-old women stratified by GP practice (one intervention subject per two controls). Women in the intervention group (n= 53,884) were offered annual mammography screening through age 48 and overall 81% attended at least one routine screen. Women in the control group (n=106,956) were not offered mammography. At a mean follow-up of 10.7 years, death from breast cancer occurred in 105 (0.19%) mammography group women and 251 (0.23%) control group women. Deaths from any cause were 960 (1.8%) in the mammography group and 1975 (1.8%) in control group. The rates (per 1000 women years) of breast cancer death were 0.18 for the mammography group and 0.22 for the control group, and the rates for total mortality were 1.66 and 1.72 respectively. These differences were not statistically significant.

Meta-analyses that include the Miller (1) and Moss (2) studies along with subgroup results from previous studies of lesser quality indicate a possible small, statistically significant effect of mammography on death from breast cancer in women aged 40-49 (2, 3, and 4). Thus, a recommendation for mammography between ages 40 and 49 is controversial because of the apparently small margin between benefit and risk demonstrated in studies. A current consensus among the USPSTF, the Cochrane Collaboration, and the American College of Physicians (ACP) is that the RRR is 15% when good and limited quality study results are combined.

The ACP has published a guideline recommending that clinicians should inform women 40 to 49 years of age about the potential benefits and harms of screening mammography. In 2009 the U.S. Preventive Services Task Force updated its recommendations for screening women below the age of 50 as follows: “The USPSTF recommends against routine screening mammography in women aged 40 to 49. The decision to start regular, biennial screening mammography before the age of 50 years should be an individual one and take into account patient context, including the patient’s values regarding specific benefits and harms (Grade C recommendation).”
In conformance with these recommendations, the Dean EBM Committee has available evidence-based information that can be used for shared decision-making with your patients.

References:

Originated: 2007
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