

Breast self examination does not improve cancer survival

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Teaching women breast self examination is not cost effective, nor does it lead to improvements in survival from breast cancer, according to a large, 10 year, randomised observational study conducted in Shanghai, China (*J Natl Cancer Inst* 2002;94:1445-57).

Breast self examinations did, however, lead to earlier detection of breast lesions and increased the number of biopsies for benign breast lumps.

David Thomas and Roberta Ray and colleagues from the Fred Hutchinson Cancer Research Center in Seattle, Washington, in conjunction with Dao Li Goa and colleagues from the Shanghai Textile Industry Bureau in Shanghai, China, conducted a study to examine the efficacy of breast self

examination in reducing breast cancer mortality.

The study group was a cohort of 266 064 female factory workers drawn from 519 textile factories in Shanghai between October 1989 and October 1991. The women were followed up until December 2000. A total of 132 979 women were randomly assigned to be instructed in intensive self examination and 133 085 women were assigned to a control group that did not receive any instruction.

Performing breast self examination did not lead to significant gains in survival. At the 10 year follow up point 154 women (0.12%) in the self examination group and 158 (0.12%) in the control group developed breast cancer and died. Of these deaths, 135 in the instruction

group and 131 in the control group were deemed to be caused by the breast cancer itself. The number of breast cancers diagnosed overall was 1747, of which 864 were in the self examination group and 890 in the control group.

The cumulative risk ratio for women in the instruction group relative to the control group was 1.04 (95% confidence interval 0.82 to 1.33).

The number of breast biopsies performed for benign disease was considerably higher in the self examination group than in the control group: 2761 compared with 1505.

Treatment patterns were similar in the two groups. About 24% of women with breast cancer in each group were given radiation treatment, while 84% in the self examination group and 82% in the control group were treated with tamoxifen. Single and multiagent chemotherapy rates were also similar in the two groups: 6.1% and 7.1%

for single agents and 80% and 81% for multiple agents. About 30% of each group used traditional Chinese medicines.

The authors concluded that, in general, teaching breast self examination is a waste of money—in developed countries and in more disadvantaged areas. In countries where mammography is available it is far superior and more specific in picking up cancerous lesions, they say. “In developing countries, where mammography screening is not available, it would not seem to be a good use of limited funds available for preventive services to promote the practice [of breast self examination],” they add.

Currently the US Preventive Health Services Task Force recommends neither for nor against self examination. The American Cancer Society still promotes the practice.

Advice to women to undertake breast self examination was abandoned over 10 years ago in the United Kingdom. □

Pregnancy and early smoking increases breast cancer risk

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The carcinogenic effect of cigarette smoke on developing breast tissue has been shown in a study in which the risk of breast cancer was 1.69 times higher, compared with age matched controls, in women who had ever been pregnant and who started to smoke within five years of menarche. Women who had never been pregnant—and so who never achieved complete differentiation of breast cells—and who smoked heavily showed a sevenfold increased risk of breast cancer (*Lancet* 2002;360:1044-9).

The Canadian study investigated all women under the age of 75 years in whom breast cancer was diagnosed between 1 June 1988 and 30 June 1989 and were listed on the population based British Columbia cancer registry. The women were compared with randomly selected, age matched controls with no history of breast cancer.

The participants completed detailed questionnaires on smoking, alcohol consumption, age at menarche, parity, breast feeding, use of contraception and hormone replacement therapy, family history of breast cancer, and lifetime occupation history. More than two thirds of the women with breast cancer (1018/1489) and a similar proportion of women in the control group (1025/1502) completed the questionnaire.

Cigarette smoking had different effects on the risk of breast cancer, depending on the age of the women when they started smoking. This helped to clarify controversy over whether breast cancer is associated with smoking. Some experimental work showed that tobacco smoke carcinogens induced cancerous changes in human breast cells, while other studies showed that smoking had an anti-oestrogenic effect and so could potentially reduce the risk of breast cancer, which is hormone dependent.

The study showed that the risk of breast cancer was significantly increased (adjusted odds ratio 1.69 (95% confidence interval 1.13 to 2.51) in women who had ever been pregnant and who started to smoke within five years of menarche. The risk was also dramatically increased in



Girls who smoke within five years of menarche are at increased risk

women who had never been pregnant and who smoked ≥ 20 cigarettes a day (adjusted odds ratio 7.08 (1.63 to 30.8)) or who smoked for ≥ 20 cumulative pack years (number of years of smoking \times mean number of packs a day) (adjusted odds ratio 7.48 (1.59 to 35.2)).

These results indicate that breast tissue is most sensitive to environmental carcinogens during periods of rapid cell proliferation when differentiation is incomplete (puberty) or when complete cellular differentiation is never achieved (women

who have never been pregnant).

In contrast, postmenopausal women whose body mass index increased after the age of 18 and who started to smoke after a first full term pregnancy had a significantly lower risk of breast cancer (adjusted odds ratio 0.49 (0.27 to 0.89)). This may be because compounds in cigarette smoke reduce production of endogenous oestrogens in postmenopausal women, at a time when the risk of breast cancer is associated with circulating oestrogen levels, which are further increased by weight gain. □