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Smoking as a Risk Factor for Breast Cancer in Women

To the Editor:
In the article “Evaluation of Common Breast Problems: Guidance for Primary Care Providers” in the January/February issue, Cady et al1 present an excellent overview for primary care providers of these issues. They note that although 75% of women with breast cancer have no clear risk factors, clinical evaluation should identify risk factors including age, first-degree relatives with breast cancer, age at first pregnancy, early menarche or late age at menopause (or both), and a history of radiation to the breast area in childhood. The authors do not mention active and passive smoking as risk factors for breast cancer in women.

A plausible basis for the hypothesis that inhalation of tobacco smoke is related to the development of breast cancer in women is that breast tissue and nipple secretions of women smokers are bathed in mutagenic tobacco chemicals.2 Genetic polymorphisms, which may be found in 50% of white females in the United States, predispose postmenopausal white women who have the N-acetyltransferase 2 slow acetylation genotype to breast cancer. Smoking at an early age was a predictor of breast cancer in these women.3

Active and passive smoking are important risk factors for breast cancer. Among 880 cases of fatal breast cancer, smoking was related to fatal breast cancer risk (adjusted rate ratio [RR] = 1.26). A dose-response relationship was found, with increased fatal breast cancer risk related to increased number of cigarettes smoked. Consumption of 40 or more cigarettes a day was associated with an RR of 1.84.4

In a study of 3,240 women aged 15 to 92 years referred for mammography, multiple logistic regression analysis showed an increased risk of breast cancer in women who had smoked for 30 years or more (odds ratio 1.6, 95% confidence interval 1.1 to 2.3).5

In a case-control study of 1,276 women, the adjusted odds ratio (OR) of breast cancer for ever-active smokers compared with women not exposed to passive or active smoke was 2.2 for those who smoked 1 to 9 cigarettes a day, 2.7 for those who smoked 10 to 19 cigarettes a day, and 4.6 for those who smoked 30 or more cigarettes a day.6 In passive smokers, the adjusted OR was 3.2 (95% confidence interval 1.6 to 6.3) for exposure 2 hours a day for 25 years. Among 835 women with primary malignant unilateral breast cancer, the risk of developing lung metastases was increased by 3% to 7% (P < 0.001) for every 1,000 packs of cigarettes consumed over a lifetime.7

In view of this accumulating body of research, guidelines for primary care clinicians regarding the evaluation and management of breast cancer should include active and passive smoking as risk factors for breast cancer in women. Most risk factors for breast cancer cannot be controlled by the patient, but women who are advised about the risks of inhaling tobacco smoke can take specific steps to reduce or eliminate their risk. Current state-of-the-art smoking-cessation programs are accessible to most women and are cost-effective preventive health activities.8
Although more research is needed to define better the relationships between inhalation of tobacco smoke and breast cancer, we have ample evidence now to alert clinicians and patients to the risks of active and passive smoking. The implications of failing to promulgate similar guidelines for cervical cancer have been the subject of recent discussion.

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Author’s reply:
Dr. Jay brings up the issue of risk factors for breast cancer. Although the literature he cites supports the concept of some relationship between cigarette smoking and breast cancer, agreement about the existence of such a relationship is not unanimous.

Several studies have shown that no connection exists between tobacco use and induction of breast cancer. In fact, breast cancer may be somewhat decreased in heavy smokers because the heavy smoking decreases estrogen production and therefore mimics the effect of heavy activity through induction of hyperthyroidism and other factors. Thus, to my knowledge, this issue is not yet settled.

The lethality of the breast cancers that develop in smokers may be an issue, however. Evidence certainly exists that heavy smokers have a poor prognosis in a variety of cancers, undoubtedly because of the physiologic effects of the multiple components of the burned tobacco that is inhaled.

We appreciate the fact that lung cancer is the most common cause of death from cancer in women and that lung cancer mortality is rising sharply, having exceeded that of breast cancer within the past few years. However, the curves for incidence and death rate for breast cancer and lung cancer, which we know is linked to smoking, have strikingly different shapes. This fact puts Dr. Jay’s thesis in question because breast cancer mortality is declining and breast cancer incidence is stable or declining, whereas the incidence of lung cancer is sharply increasing as women smoke more and more cigarettes. Thus, the linkage on the background demographic level does not support the thesis that smoking is a risk factor for breast cancer.

We all should be involved in the campaign to get women to stop smoking because enormous health penalties result from tobacco use, but in my opinion, induction of breast cancer is not one of them.

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