

Thermographic Screening for Breast Cancer in a Gynecologic Practice

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In the course of their practice 2 gynecologists have conducted a program of screening for breast cancer in 1538 patients ages 35-49 years and on 1102 patients ages 50 or older. The screening protocol of breast examinations, thermography, and selective mammography is described. Twenty-four (9/1000) breast cancers were found, 12 in each age group. Eight of these (3/1000) were clinically occult (6 in the younger age group, 4/1000) and were detected by abnormal thermograms followed by mammography. Of the 12 cancers in the 35-49-year-old age group, 6 were discovered at the first screening, and the other 6 by thermographic changes at intervals of 6-24 months. Thermographic screening is more accurate than breast examination alone, but less accurate than if mammography is included. However, since routine annual use of the latter in younger women still raises concerns about x-ray dosage, thermography is a valuable adjunct to physical examination alone. When it is abnormal, mammography is indicated. The 3 complementary methods can reveal about 9 of 10 preclinical cancers in young women.

The obstetrician-gynecologist becomes the primary physician for about 44% of the women for whom he or she has performed deliveries or pelvic surgery.^{1,2} Since these women return at least annually—for pelvic examination and Papanicolaou smears—the physician is in a unique position to provide them with screening for breast cancer. This paper reports the methods and results of such a screening program.

Material and Methods

In the 34 months from January 13, 1975, to November 30, 1977, 2640 patients ≥ 35 years of age were screened for breast cancer (Table 1). The general protocol followed is shown in Table 2. Personnel were trained at the Breast Cancer Detection Center of the Jefferson Medical School, Philadelphia, and its methods were the models for those used in this study.^{3,5}

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In a 10 × 11-foot air-conditioned examining room thermograms were obtained with an AGA Model 680M Thermovision camera. Films were developed by a Pako 90-second x-ray developer. [About 5-10% of patients refused thermography because of its cost (currently \$25) or because of doubts about its value.]⁵ Mammograms and xeromammograms were performed in local hospitals or in the offices of radiologists.

Thermograms were obtained after history and physical examination and were then read separately by both gynecologists before mammography was performed. Readings were recorded as follows: "Normal, repeat one year"; "Hypervascular, repeat 6 months"; and "Abnormal, mammogram (or xeromammogram) scheduled, and repeat examination after x-rays." Indications for mammography, derived from reported experience,⁶⁻⁹ were as follows:

- Personal history of breast cancer.
- Immediate (mother or sister) family history.
- Nulliparity or first pregnancy after age 30.
- Menarche at or before age 11.
- Previous benign breast biopsy (within 3 years).
- Large breasts (D-cup), dense, painful, cystic breasts, abnormal nipple discharge.
- Abnormal thermogram.
- Routine every 1-2 years in patients over age 50 (patient's option after being informed of benefit-risk factors).
- Mammograms showing prominent duct pattern.

A patient with suspicious physical examination and/or x-ray findings was referred to a surgeon of her choice (since the authors do not perform breast surgery) who made separate biopsy recommendations.

Results

Among the entire 2640 patients, 24 breast cancers were found, a detection rate of 0.9% (9/1000). Eight of