

HOSPITAL PHYSICIAN®

ONCOLOGY BOARD REVIEW MANUAL

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The *Hospital Physician Oncology Board Review Manual* is a study guide for fellows and practicing physicians preparing for board examinations in oncology. Each manual reviews a topic essential to the current practice of oncology.

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Adjuvant Therapy for Early-Stage Breast Cancer

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Adjuvant Therapy for Early-Stage Breast Cancer

Jeffrey Peppercorn, MD, MPH

INTRODUCTION

Breast cancer is the most common cancer affecting women and the second leading cause of cancer death among women. It is estimated that over 210,000 cases of new invasive breast cancer and 55,000 cases of noninvasive ductal carcinoma in situ were diagnosed in the United States in 2003.¹ Nearly 40,000 women die from breast cancer each year.² An estimated 1300 cases occur annually among men, leading to 400 deaths each year.² Though the incidence of breast cancer continues to rise by approximately 0.4% per year in the United States, the rate of death due to breast cancer has been declining since 1975.¹ These trends reflect in part increased diagnosis due to screening and awareness and earlier detection leading to effective therapy and cure.

Breast cancer is most commonly diagnosed when it is confined to the breast or the breast and axillary lymph nodes. If the cancer is confined to these areas and is not invading local structures such as the chest wall, then it is considered early-stage disease and potentially curable. Advanced or metastatic disease that is not amenable to resection, that recurs distantly, or that is widespread at the time of diagnosis is not considered curable. The evaluation and treatment of metastatic breast cancer will be discussed in a separate monograph.

Therapy for early-stage breast cancer can be divided into local and systemic treatments. Local therapy is intended primarily to treat the disease in the breast and axilla while systemic therapy is intended primarily to treat microscopic metastatic disease that may lead to recurrence and death. However, given that all invasive breast cancer has the potential to metastasize and that systemic therapy can control microscopic disease in the breast and axilla as well, these definitions are not mutually exclusive and the therapies are complementary. Local therapy consists of surgery and radiation therapy. As these therapies are administered by surgeons and radiation oncologists respectively, they will be discussed only briefly here, with the focus on adjuvant therapy administered by medical oncologists.

CASE STUDY

INITIAL PRESENTATION

A 45-year-old woman presents to her primary care physician complaining of a breast mass that she noted 2 weeks ago while showering. The patient was otherwise healthy. She had started yearly mammograms at age 40 years, and these had all been negative. Her most recent negative mammogram was performed 1 month earlier. The mass was firm, approximately 1 cm in size, and located in the upper outer quadrant of her right breast.

- **How good is mammography for detection of breast cancer?**

Mammography is a standard screening test for breast cancer. Yearly mammography, in addition to yearly clinical breast examination, is recommended for all women over age 40 years as long as they are in otherwise good health.³ Mammography, however, does not detect all breast cancers, although it has been shown to reduce breast cancer-related mortality in screened populations by approximately 25% to 30%.^{4,5} Lesions detected early are more likely to be cured. The sensitivity of mammography for detection of breast cancer varies in different studies but has been reported to range from 65% to 76% among US radiologists, with a specificity of 90%.⁶ Trade-offs between sensitivity and specificity in mammography, as with other screening tests, may lead to detection of more breast cancers but at the cost of more negative biopsies. In patients with denser breasts (typically younger patients), mammographic detection of breast cancer is more difficult.

A recent study comparing the efficacy of screening by mammography and magnetic resonance imaging (MRI) among women at high risk for breast cancer found that the sensitivity of mammography was only 40% with a 95% specificity, while the sensitivity of MRI in this setting was 71% with a 90% specificity.⁷ This study may lead to the adoption of MRI as a standard screening tool for select high-risk patients. The role of MRI