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Comprehensive Cancer Information for Patients, Families and Medical Professionals Printed from CancerHelp®

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Breast Cancer 02/03

-- General Information --

Note: Separate PDQ summaries on Prevention of Breast Cancer; Screening for Breast Cancer; Breast Cancer and Pregnancy Treatment; and Male Breast Cancer Treatment are also available.

Several well-established factors have been associated with an increased risk of breast cancer. These include family history, nulliparity, early menarche, advanced age, and a personal history of breast cancer (in situ or invasive). (Refer to the PDQ summary on Genetics of Breast and Ovarian Cancer for more information.)

Clinical trials have established that screening with mammography, with or without clinical breast examination, may decrease breast cancer mortality. (Refer to the PDQ summary on Screening for Breast Cancer for more

information.) Breast cancer is commonly treated by various combinations of surgery, radiation therapy, chemotherapy, and hormone therapy. Prognosis and selection of therapy may be influenced by the age and menopausal status of the patient, stage of the disease, histologic and nuclear grade of the primary tumor, estrogen-receptor (ER) and progesterone-receptor (PR) status, measures of proliferative capacity, and HER2/neu gene amplification.[1] Although certain rare inherited mutations such as BRCA1 and BRCA2 predispose women to develop breast cancer, prognostic data on mutation carriers who have developed breast cancer are conflicting. Since criteria for menopausal status vary widely, some studies have substituted age greater than 50 years as a surrogate for the postmenopausal state. Breast cancer is classified into a variety of histologic types, some of which have prognostic importance. For example, favorable histologic types include mucinous, medullary, and tubular carcinoma.[2] This section will only discuss primary epithelial breast cancers. Rarely, the breast may be involved by other tumors such as lymphoma, sarcoma, or melanoma. These diseases are discussed elsewhere in PDQ under the specific disease types.

-- Patient evaluation --

Patient management following initial suspicion of breast cancer generally includes confirmation of the diagnosis, evaluation of stage of disease, and selection of therapy. Diagnosis may be made by use of established prognostic markers. At the time the tumor tissue is surgically removed, ER and PR status should be determined.

-- Contralateral disease --

Pathologically, breast cancer can be a multicentric and bilateral disease. Bilateral disease is somewhat more common in patients with infiltrating lobular carcinoma. Therefore, patients who have breast cancer should have bilateral mammography at the time of diagnosis to rule out synchronous disease. Patients should continue to have regular breast physical examinations and mammography to detect either recurrence in the ipsilateral breast in those patients treated with breast-conserving surgery or a second primary cancer in the contralateral breast.[3] The risk of a

primary breast cancer in the contralateral breast is approximately 1% per year.[4] [5] Patient age younger than 55 years at the time of diagnosis or lobular tumor histology appear to increase this risk to 1.5%.[6] The development of a contralateral breast cancer is associated with an increased risk of distant recurrence.[7] [8]

-- Hormone replacement therapy --

The use of hormone replacement therapy (HRT) poses a dilemma for the rising numbers of breast cancer survivors, many of whom enter menopause prematurely as a result of therapy. HRT has generally not been used for women with a history of breast cancer because estrogen is a growth factor for most breast cancer cells in the laboratory. Neither pregnancy after breast cancer nor the use of oral contraceptive pills before a diagnosis of breast cancer has been shown to adversely impact survival when controlled for stage of disease.[9] Reports from small uncontrolled series of breast cancer survivors treated with low-dose HRT did not show adverse impact upon survival.[10] [11] These findings provide the rationale for prospective clinical trials testing the safety of HRT for women with a history of breast cancer.[11] A comprehensive intervention, including education, counseling, and non-hormonal drug therapy, has been shown to reduce menopausal symptoms and to improve sexual functioning in breast cancer survivors.[12][Level of evidence: 1iiC]

-- Genetics --

Women with a family history of breast cancer may have an increased risk of disease. Age-specific risk estimates are available to help counsel and design screening strategies for these women.[13] [14] It is estimated that approximately 5% to 10% of all women with breast cancer may have a germ-line mutation of the genes BRCA1 and BRCA2.[15] Specific mutations of BRCA1 and BRCA2 are more common in women of Jewish ancestry.[16] The estimated lifetime risk of developing breast cancer for women with BRCA1 and BRCA2 mutations is 40% to 85%. Carriers with a history of breast cancer have an increased risk of contralateral disease that may be as high as 5% per year.[17] Male carriers of BRCA2 mutations are also at increased risk for breast cancer.[18] Mutations in either gene also

confer an increased risk of ovarian cancer.[18] [19] [20] In addition, mutation carriers may be at increased risk of other primary cancers.[18] [20] Genetic testing is available to detect mutations in members of high-risk families.[21] [22] [23] [24] [25] Such individuals should first be referred for counseling.[26] (Refer to the PDQ summaries on Screening for Breast Cancer; Prevention of Breast Cancer; and Genetics of Breast and Ovarian Cancer for more information.)

-- Follow-up --

There is evidence from randomized trials that periodic follow-up with bone scans, liver sonography, chest x-rays, and blood tests of liver function do not improve survival or quality-of-life when compared to routine physical examinations.[27] [28] Even when these tests permit earlier detection of recurrent disease, patient survival is unaffected.[28] Based on these data, some investigators recommend that acceptable follow-up be limited to physical examination and annual mammography for asymptomatic patients who complete treatment for stages I-III breast cancer. The frequency of follow-up and the appropriateness of screening tests after the completion of primary treatment for stages I-III breast cancer remain controversial.

-- Breast reconstruction --

For patients who opt for a total mastectomy, reconstructive surgery may be used. It may be done at the time of the mastectomy (immediate reconstruction) or at some subsequent time (delayed reconstruction).[29] [30] [31] [32] Breast contour can be restored by the submuscular insertion of an artificial implant (saline-filled) or a rectus muscle or other flap. If a saline implant is used, a tissue expander can be inserted beneath the pectoral muscle. Saline is injected into the expander to stretch the tissues over a period of weeks or months until the desired volume is obtained. The tissue expander is then replaced by a permanent implant. While there is no convincing evidence that a silicone implant induces cancer or autoimmune disease, silicone implants are available only through restricted clinical trials approved by the Food and Drug Administration (visit the FDA's fda.gov Web site for more information on silicone breast

implants). Rectus muscle flaps require a considerably more complicated and prolonged operative procedure, and blood transfusions may be required. Following breast reconstruction, radiation therapy can be delivered to the chest wall and regional nodes either in the adjuvant setting or if local disease recurs. Radiation therapy following reconstruction with a breast prosthesis may affect cosmesis, and the incidence of capsular fibrosis, pain, or the need for implant removal may be increased.[33]

References:

1. Simpson JF, Gray R, Dressler LG, et al.: Prognostic value of histologic grade and proliferative activity in axillary node-positive breast cancer: results from the Eastern Cooperative Oncology Group Companion Study, EST 4189. *J Clin Oncol* 18 (10): 2059-69, 2000.
2. Rosen PP, Groshen S, Kinne DW: Prognosis in T2N0M0 stage I breast carcinoma: a 20-year follow-up study. *J Clin Oncol* 9 (9): 1650-61, 1991.
3. Orel SG, Troupin RH, Patterson EA, et al.: Breast cancer recurrence after lumpectomy and irradiation: role of mammography in detection. *Radiology* 183 (1): 201-6, 1992.
4. Rosen PP, Groshen S, Kinne DW, et al.: Factors influencing prognosis in node-negative breast carcinoma: analysis of 767 T1N0M0/T2N0M0 patients with long-term follow-up. *J Clin Oncol* 11 (11): 2090-100, 1993.
5. Gustafsson A, Tartter PI, Brower ST, et al.: Prognosis of patients with bilateral carcinoma of the breast. *J Am Coll Surg* 178(2): 111-116, 1994.
6. Broët P, de la Rochefordière A, Scholl SM, et al.: Contralateral breast cancer: annual incidence and risk parameters. *J Clin Oncol* 13 (7): 1578-83, 1995.
7. Healey EA, Cook EF, Orav EJ, et al.: Contralateral breast cancer: clinical characteristics and impact on prognosis. *J Clin Oncol* 11 (8): 1545-52, 1993.
8. Heron DE, Komarnicky LT, Hyslop T, et al.: Bilateral breast carcinoma: risk factors and outcomes for patients with synchronous and metachronous disease. *Cancer* 88 (12): 2739-50, 2000.
9. Breast cancer and hormonal contraceptives: collaborative reanalysis of individual data on 53 297 women with breast cancer and 100 239 women without breast cancer from 54 epidemiological studies. Collaborative

Group on Hormonal Factors in Breast Cancer. *Lancet* 347 (9017): 1713-27, 1996.

10. Cobleigh MA, Berris RF, Bush T, et al.: Estrogen replacement therapy in breast cancer survivors. A time for change. Breast Cancer Committees of the Eastern Cooperative Oncology Group. *JAMA* 272 (7): 540-5, 1994.

11. Roy JA, Sawka CA, Pritchard KI: Hormone replacement therapy in women with breast cancer. Do the risks outweigh the benefits? *J Clin Oncol* 14 (3): 997-1006, 1996.

12. Ganz PA, Greendale GA, Petersen L, et al.: Managing menopausal symptoms in breast cancer survivors: results of a randomized controlled trial. *J Natl Cancer Inst* 92 (13): 1054-64, 2000.

13. Claus EB, Risch N, Thompson WD: Autosomal dominant inheritance of early-onset breast cancer. Implications for risk prediction. *Cancer* 73 (3): 643-51, 1994.

14. Gail MH, Brinton LA, Byar DP, et al.: Projecting individualized probabilities of developing breast cancer for white females who are being examined annually. *J Natl Cancer Inst* 81 (24): 1879-86, 1989.

15. Blackwood MA, Weber BL: BRCA1 and BRCA2: from molecular genetics to clinical medicine. *J Clin Oncol* 16 (5): 1969-77, 1998.

16. Offit K, Gilewski T, McGuire P, et al.: Germline BRCA1 185delAG mutations in Jewish women with breast cancer. *Lancet* 347 (9016): 1643-5, 1996.

17. Frank TS, Manley SA, Olopade OI, et al.: Sequence analysis of BRCA1 and BRCA2: correlation of mutations with family history and ovarian cancer risk. *J Clin Oncol* 16 (7): 2417-25, 1998.

18. Cancer risks in BRCA2 mutation carriers. The Breast Cancer Linkage Consortium. *J Natl Cancer Inst* 91 (15): 1310-6, 1999.

19. Miki Y, Swensen J, Shattuck-Eidens D, et al.: A strong candidate for the breast and ovarian cancer susceptibility gene BRCA1. *Science* 266 (5182): 66-71, 1994.

20. Ford D, Easton DF, Bishop DT, et al.: Risks of cancer in BRCA1-mutation carriers. Breast Cancer Linkage Consortium. *Lancet* 343 (8899): 692-5, 1994.

21. Biesecker BB, Boehnke M, Calzone K, et al.: Genetic counseling for families with inherited susceptibility to breast and ovarian cancer. *JAMA* 269 (15): 1970-4, 1993.

22. Hall JM, Lee MK, Newman B, et al.: Linkage of early-onset familial breast cancer to chromosome 17q21. *Science* 250 (4988): 1684-9, 1990.
23. Easton DF, Bishop DT, Ford D, et al.: Genetic linkage analysis in familial breast and ovarian cancer: results from 214 families. The Breast Cancer Linkage Consortium. *Am J Hum Genet* 52 (4): 678-701, 1993.
24. Berry DA, Parmigiani G, Sanchez J, et al.: Probability of carrying a mutation of breast-ovarian cancer gene BRCA1 based on family history. *J Natl Cancer Inst* 89 (3): 227-38, 1997.
25. Hoskins KF, Stopfer JE, Calzone KA, et al.: Assessment and counseling for women with a family history of breast cancer. A guide for clinicians. *JAMA* 273 (7): 577-85, 1995.
26. Statement of the American Society of Clinical Oncology: genetic testing for cancer susceptibility, Adopted on February 20, 1996. *J Clin Oncol* 14 (5): 1730-6; discussion 1737-40, 1996.
27. Impact of follow-up testing on survival and health-related quality of life in breast cancer patients. A multicenter randomized controlled trial. The GIVIO Investigators. *JAMA* 271 (20): 1587-92, 1994.
28. Rosselli Del Turco M, Palli D, Cariddi A, et al.: Intensive diagnostic follow-up after treatment of primary breast cancer. A randomized trial. National Research Council Project on Breast Cancer follow-up. *JAMA* 271 (20): 1593-7, 1994.
29. Feller WF, Holt R, Spear S, et al.: Modified radical mastectomy with immediate breast reconstruction. *Am Surg* 52 (3): 129-33, 1986.
30. Cunningham BL: Breast reconstruction following mastectomy. In: Najarian JS, Delaney JP, eds.: *Advances in Breast and Endocrine Surgery*. Chicago, Ill: Year Book Medical Publishers, 1986, pp 213-226.
31. Scanlon EF: The role of reconstruction in breast cancer. *Cancer* 68 (5 Suppl): 1144-7, 1991.
32. Hang-Fu L, Snyderman RK: State-of-the-art breast reconstruction. *Cancer* 68 (5 Suppl): 1148-56, 1991.
33. Kuske RR, Schuster R, Klein E, et al.: Radiotherapy and breast reconstruction: clinical results and dosimetry. *Int J Radiat Oncol Biol Phys* 21 (2): 339-46, 1991.

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