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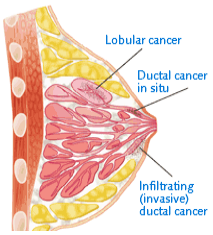
October is …
Breast Cancer Awareness Month

Breast Cancer Basics



The breast is made up of three primary tissue types: glands, also called lobules, ducts and connective tissue.[1] While finding a lump or change in your breast may be alarming, it does not necessarily mean you have breast cancer. The most common causes of lumps or dense areas in the breast are cysts and fibrocystic breast condition.[2] Cysts are fluid-filled sacs in the breasts. Fibrocystic condition causes changes in the breast tissue that is non-cancerous, but can make the breast lumpy, tender and sore. The most common types of breast cancer are ductal carcinoma, making up 75% of all breast cancers, and lobular carcinoma.[3] While breast cancer is predominantly found in women, it can occur in men. It is estimated that 2007 will have 178,480 new cases of breast cancer in women and 2030 new cases in men.[2] Likewise, it is estimated there will be 40,460 deaths in women and 450 male deaths due to breast cancer.[2]

1. Cancer.gov [homepage on the Internet]. Bethesda, National Cancer Institute; c2007 [Updated 2007 Jul 30, cited 2007 Sept 17]. Available from: http://www.cancer.gov/cancertopics/wyntk/breast/page1.
2. Cancer.org [homepage on the Internet]. Atlanta: American Cancer Society Inc.c2007 [updated 2006 Sept 26, cited 2007 Sept 16]. Available from http://www.cancer.org/docroot/CRI/content/CRI_2_2_3X_How_is_breast_cancer_found_5.asp?sitearea=.
3. CDC.gov [homepage on the Internet] Atlanta: Centers for Disease Control and Prevention; c2007 [updated 2007 Oct 16, cited 2007 Sept 15]. Available from: http://www.cdc.gov/cancer/breast/basic_info/

Breast Cancer Detection

Breast cancer screening is a way to evaluate women for earlier forms of cancer which are typically most treatable. While regular screening for breast cancer is the best way for women to lower their risk of dying from breast cancer, many women still do not get regular testing due to the discomfort and awkwardness of the procedure.[1] The three most common screenings for breast cancer include mammography, clinical breast exam, and breast self-exam. A mammogram is an x-ray of the breast tissue and at present, is the best way to find breast cancer.[1] Clinical breast exams are conducted by physicians or nurses and are used to feel for lumps or other changes.[2] Self breast exams are similar to clinical breast exams, except they may be done at home and more frequently than is practical for clinical exams. Additional tools used to evaluate for cancer include digital mammography, MRI and PET scans.

1. CDC.gov [homepage on the Internet] Atlanta: Centers for Disease Control and Prevention; c2007 [updated 2007 Oct 16, cited 2007 Sept 15]. Available from: http://www.cdc.gov/cancer/breast/basic_info/screening.htm
2. Saslow D, Hannan J, Osuch J, Alciati MH, Baines C, Barton M, et al. Clinical breast examination: practical recommendations for optimizing performance and reporting. *CA: A Cancer Journal for Clinicians* 2004;54(6):327–44.

Self Breast Exam

It is recommended that you examine your breasts at the same time each month. For premenopausal women it is recommended to do this a few days after menstruation, when the breasts will be less swollen or tender. By performing regular self breast exams, you will be more familiar with how your

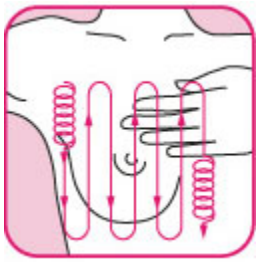
breasts normally feel and look. This makes it easier for you to identify any changes. While they may not be cancerous, any changes or lumps you find should be examined by your physician, as further tests may be warranted. When you perform a self-exam you are looking for a lump or a change that is different from the rest of the breast tissue. If you find a lump, you should compare it to tissue in the same area of the other breast. If both breasts feel similar, the lumpiness is likely normal. Regular breast self-exams will help you be familiar with any normal lumpiness that is present so you can better recognize any changes. While lumps and swelling are two more obvious changes, also look for overall changes and notify your physician right away if you find:[1]

- Change in breast size or shape
- Dimpling or puckering of the skin
- Pulling in of the nipple
- An itchy, sore or scaling area on one nipple
- Any new, hard lump or thickening in any part of the breast
- Swelling, redness or warmth that does not go away
- Pain in one spot that does not vary with your monthly cycle
- Nipple discharge that starts suddenly and appears only in one breast

1. Cancer.gov [homepage on the Internet]. Bethesda, National Cancer Institute; c2007 [Updated 2007 Jul 30, cited 2007 Sept 17]. Available from: http://www.cancer.gov/cancertopics/wyntk/breast/page5 .

Correct Procedure for Self Breast Exam[1]

- Lie down on a flat surface and place one arm behind your head. Lying down allows the breast tissue to flatten against the chest wall, making it as thin as possible for the exam. Use the three middle fingers of one hand to examine the opposite breast by moving in overlapping, dime sized. Circular motions.
- Use three different amounts of pressure to feel the breast tissue. Lighter pressure allows for examination of more surface tissue, while firmer pressure allows for examination of tissue closer to chest wall. Use different pressures to examine the tissue in each area before moving to the next area.



- Move around the breast in a uniform pattern, top to bottom, then towards the sternum. Be sure to cover from the collarbone as the upward most point to where you feel only ribs as the lowest most point. This vertical pattern will help ensure you do not miss sections.
- Repeat this pattern on the opposite breast, using the finger pads of the contra-lateral hand to examine the breast tissue.
- Next, while standing, press hands firmly against the hip bones to contract the muscles of the chest wall and accentuate any breast tissue changes. Now examine the breasts for changes in shape, size, contour, dimpling, redness or scaliness of the nipples or breast skin.
- With the arm raised only slightly, examine the area under the arm.

1. Cancer.org [homepage on the Internet]. Atlanta: American Cancer Society; c2007 [Updated 2007 Mar 29, cited 2007 Sept 17]. Available from: http://www.cancer.org/docroot/cri/content/cri_2_6x_how_to_perform_a_breast_self_exam_5.asp?sitearea=CRI&viewmode=print.

http://www.arimidex.com/breast-cancer-treatment/breast-self_exam.asp

Breast Cancer Risk Factors and Screening

Breast cancer is the second most frequently diagnosed cancer in women. While all women are at risk for breast cancer, there are ways to reduce your risk, such as maintaining a healthy weight, exercising

regularly (five hours of exercise a week), and not smoking.[1] The National Cancer Institute and the National Surgical Adjuvant Breast and Bowel Project have developed the Breast Cancer Risk Assessment Tool to assist health care providers in discussing breast cancer risk with their female patients. The assessment tool estimates a woman's breast cancer risk over a five year period of time and over her lifetime and then compares the woman's risk calculation with the average risk for a woman of the same age. The breast Cancer Risk Assessment Tool can be found at: http://www.cancer.gov/bcrisktool. The tool assesses the following risk factors:[2]

- Age: Risk for developing breast cancer increases with age, nearly 8 out 10 breast cancers are found in women after the age of 50.
- Personal and family history of breast cancer.
- Menstrual History: Women with more years of exposure to estrogen have a higher risk of breast cancer.
- Age at first live birth: Women having their first full term pregnancy after age thirty or who have never been pregnant are at higher risk for breast cancer.
- Genetic alterations: Abnormal BRCA1 and BRCA2 genes are linked to increased risk for breast cancer.
- Race: Breast cancer in the United States occurs more frequently in white women; but before age 40 the risk is greater in African American women.

Self breast exams are not a substitute for scheduled mammograms. It is recommended that women be screened for breast cancer at the following intervals:[3]

Women with average risk:

- Clinical Breast Exams at least every 3 years (age 20-39)
- Clinical Breast Exams annually (age $\geq$ 40)
- Self Breast Exams monthly (age $\geq$ 20)
- Mammogram annually (age $\geq$ 40)

Women at increased risk:

- Self Breast Exams monthly (age $\geq$ 20)
- Have baseline mammogram earlier than age 40
- Consult physician about frequency of additional exams

1. Cancer.org[homepage on the Internet] Atlanta: American Cancer Society Inc.c2007 [updated 2006 Sept 26, cited 2007 Sept 16]. Available from http://www.cancer.org/docroot/CRI/content/CRI_2_2_2X_What_causes_breast_cancer_5.asp?sitearea
2. National Cancer Institute [homepage on the internet]. [updated 2006 Sept 5; cited 2007 Sept16].Breast Cancer risk Assessment Tool. Available from:http://www.cancer.gov/bcrisktool
3. Smith RA, Saslow D, Sawyer KA, Burke W, Costanza ME, Evans WP, et al. American Cancer Society Guidelines for Breast Cancer Screening: Update 2003. *CA Cancer J Clin* 2003;53:141-169.

Lifestyles: The Recipe Corner

Eating Well Through Cancer: Easy Recipes and Recommendation During and After Treatment by Holly Clegg is a specialty cookbook for cancer patients. The recipes focus on foods that are easily tolerated and are designed to ease the symptoms during cancer treatments. The book is available for purchase at http://www.amazon.com/Eating-Well-Through-Cancer-Recommendations/dp/0961088885. Free recipes are also available for breast cancer patients at http://www.nbcam.com/recipe.cfm?id=3.

Oven Fried Parmesan Chicken

3/4 cup nonfat plain yogurt
1/4 cup lemon juice
1 1/2 tablespoons Dijon mustard
1 teaspoon garlic, minced
1/2 teaspoon dried oregano leaves
8 skinless, boneless chicken breasts
2 cups Italian bread crumbs
1/4 cup grated Parmesan cheese
2 tablespoons margarine, melted

Preheat oven to 350 degrees. Combine yogurt, lemon juice, mustard, garlic, and oregano. Pour over and coat chicken. Marinate, covered, 2 hours or overnight in refrigerator. Drain chicken. Mix together bread crumbs and cheese and coat chicken. Place on baking sheet coated with nonstick cooking spray and chill for one hour (time permitted). Drizzle with margarine. Bake for 45 min to 1 hour or until tender and golden brown. Makes 8 servings.

SERM's, AI's, and an ERD – more pharmacy school acronyms or breast cancer treatments?

An increase in breast cancer research funding has led to the discovery of new and highly specific types and causes of breast cancer. Along with these discoveries has been the advancement in breast cancer treatment. While surgery and chemotherapy remain the mainstay of treatment, outpatient therapies exist to prevent recurrence in those patients with estrogen-receptor positive carcinomas.

Currently five oral therapies as well as a once-a-month injection are FDA-approved for prevention of breast cancer recurrence. Novaldex® (tamoxifen), a selective estrogen receptor modulator (SERM) approved in 1977, is the oldest of these medications and generally considered the gold standard medication; however a new class of medications, the aromatase inhibitors (AI's), has recently gained in popularity. The first generation aromatase inhibitors were developed in the 1960's; however, 2nd, 3rd, and 4th generation products have been developed within the past 15 years. Later generation aromatase inhibitors are highly specific for the aromatase enzyme, that which is ultimately responsible for the production of estrogen. Arimidex® (anastrozole), Aromasin® (exemestane), and Femara® (letrozole) are the most recent and commonly used aromatase inhibitors to be approved by the FDA.[1]

Recently, the use of aromatase inhibitors before or after tamoxifen has become controversial. The results of the ATAC trial, which compared 5 years of continuous anastrozole to 5 years of continuous tamoxifen, favored the use of anastrozole in prevention of breast cancer in all patients (hazards ratio 0.87, 95% CI 0.78-0.97, p=0.01) as well as those with estrogen-receptor positive breast cancer (hazards ratio 0.83, 95% CI 0.73-0.94, p=0.005).[2] Another recent trial, the Intergroup Exemestane Study, showed a disease-free survival advantage in patients who switched to exemestane after 2-3 years of tamoxifen therapy over those who took 5 continuous years of tamoxifen.[3] While this research is encouraging, neither agent alone has been shown to have benefit beyond 5 years. In 2011, 10 year survival data from the IES will be published which might change current practice.[1] According to clinicaltrials.gov, a trial comparing prolonged tamoxifen therapy (> 5 years) to shorter therapy is being conducted.[4]

The newest FDA-approved product approved for recurrence of breast cancer, Faslodex® (fulvestrant), is a once-a-month IM injection that acts as an estrogen receptor downregulator (ERD).[1] In two clinical trials, fulvestrant was shown to be as effective as anastrozole in time to progression of breast cancer.[5-6] Approved as a second-line agent, a comparative trial with tamoxifen as first-line is ongoing.

1. Clinical Pharmacology [database on CD-ROM]. Gold Standard. Ver 2.25, 3rd quarter ed. Tampa 2007.
2. The ATAC (Arimidex, Tamoxifen Alone or in Combination) Trialists' Group. Results of the ATAC (Arimidex, Tamoxifen Alone or in Combination) trial after completion of 5 years' adjuvant treatment of breast cancer. Lancet 2005;365:60-62.
3. Coombes RC, Hall E, Gibson LJ, Paridaens R, Jassem J, Delozier T, et. al. A randomized trial of exemestane after two to three years of tamoxifen therapy in postmenopausal women with primary breast cancer. N Engl J Med 2004;350:1081-92.
4. Clinicaltrials.gov [homepage on the Internet]. Washington DC: US National Institutes of Health. [updated 2007 Sept 19; cited 2007 Sept 19]. Available from: http://www.clinicaltrials.gov.
5. Osborne CK, Pippen J, Jones SE, Parker LM, Ellis M, Come S, et. al. Double-blind, randomized trial comparing the efficacy and tolerability of fulvestrant versus anastrozole in postmenopausal women with advanced breast cancer progressing on prior endocrine therapy: results of a North American trial. J Clin Oncol 2002;20:3386-95.
6. Howell A, Robertson JFR, Quaresma Albano J, Aschermannova A, Mauriac L, Kleeberg UR, et. al. Fulvestrant, formerly ICI 182,780, is as effective as Anastrozole in postmenopausal women with advanced breast cancer progressing after prior endocrine treatment. J Clin Oncol 2002;20:3396-3403.

The last "dose" ... "Poison is in everything, and no thing is without poison. The dosage makes it either a poison or a remedy."

Paracelsus, Swiss scientist [1493 - 1541]

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