HIGH RISK BREAST PROGRAM OF VT

Spring2009

HIGH RISK BREAST PROGRAM OF VERMONT

Spring 2009

Mammographic Breast Density

Why All the Buzz on Breast Density?

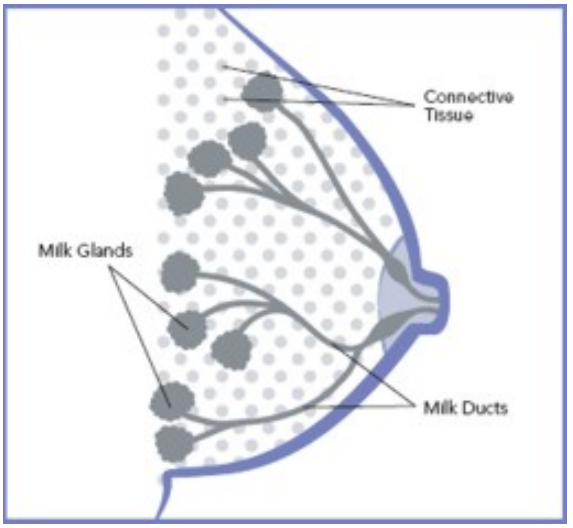
Mammographic breast density is one of the strongest known risk factors for breast cancer; second only to age and carrying a BRCA mutation. Furthermore, extensive mammographic density is common and may account for 30% of all cases of breast cancer, compared to BRCA mutations, which account for less than 5% of all breast cancer.

Breast Density and Breast Cancer Risk

Research has shown that the risk of breast cancer is 4-6 times greater in women who have greater than 75% breast density compared to women with little or no breast density (*see table on page 3)*. Additionally, extensive mammographic breast density is associated with an increased risk for atypical hyperplasia and *in situ* breast cancer (DCIS), both of which are associated with increased risk for subsequent invasive breast caner.

Overview of Breast Biology

A breast is made up of three main parts: glands, ducts and connective tissue. The glands produce milk, the ducts carry milk to the nipple and the connective tissue connects and holds everything together. The connective tissue consists of fibroglandular and fatty tissue. Dense breast tissue means there is more fibroglandular tissue and less fatty tissue.



What is Mammographic Density?

Mammographic density refers to the variations in the radiological appearance of the breast, which reflect variations in breast tissue composition. Fatty tissue appears darker on a mammogram while fibroglandular or dense tissue appears white on a mammogram. Mammographic density is determined by comparing the white (fibroglandular) versus the dark (fatty) patterns on a mammogram. *(continued on page 2)*

Updates on Funding Support for HRBP

Once again the **HRBP Scarf Project** has been a great success! We continue to receive dozens of donated scarves from talented knitters throughout the region. This year scarves were sold at the FAHC Breast Care Center, UVM's Growing Vermont, and at the annual Breast Cancer Conference in Burlington, Vermont. In turn, we collected almost $3,600 to support the HRBP! Thank you to all who have made this project a success. Scarf sales will resume in September.

The HRBP will also benefit from **The Vermont Student Assistance Corp.'s (VSAC)** employee dress down day for the month of May. On May 21st, all VSAC employees will have the option to pay $2 to dress down for the work day and can participate in a 50/50 raffle. Proceeds will be donated to the HRBP. Thank you VSAC!

If you are interested in making a donation to the HRBP please contact Fonda Kingsley at 802-656-8502.

INSIDE

Contact Us

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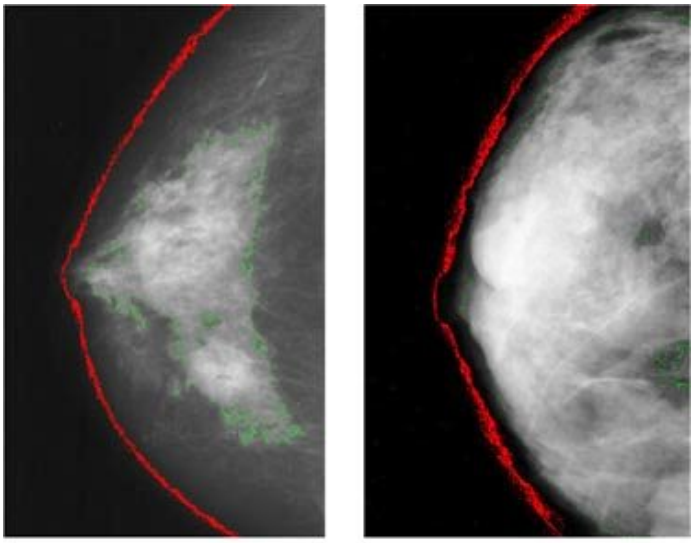
In addition to increasing breast cancer risk, breast density makes the detection of cancer by mammography more difficult. Breast density decreases the likelihood of detecting cancer when it is present.

Mechanisms underlying the association between breast density and breast cancer are unclear. However, epithelial and stromal cell growth have been shown to be associated with mammographic density. Currently, research on mammographic density focuses on how to accurately measure breast density on mammograms, factors that influence or modify breast density and genes related to mammographic breast density.



The above mammograms depict a fatty breast (left) and a dense breast (right) that have been scanned by a breast density estimating system outlining the breast in red.
Image from NCI Cancer Bulletin, Volume 5 (21), October 21, 2008.

Measuring Mammographic Density

Radiologists routinely estimate breast density on mammograms by using the American College of Radiology BI-RADS (Breast Imaging Reporting and Data System) density categories in order to provide a reference for mammographic sensitivity. It is a qualitative method for assessing density allowing a radiologist to indicate the level of concern that a cancer in the breast might be missed on mammography due to masking by dense tissue. The BI-RADS system describes 4 categories of breast density:

- entirely fat (<10% of dense tissue)
- scattered fibroglandular densities (10-49% of dense tissue)
- heterogeneously dense (49-90% of dense tissue)
- extremely dense (>90% dense tissue)

This visual assessment and categorization is both subjective and crude. A computerized method for analyzing breast density would be useful and has been developed for research purposes but not yet for clinical practice.

Factors Associated with Breast Density

Breast density is associated with a number of factors:

Age– Mammographic density decreases with increasing age. Postmenopausal women have consistently been found to have less mammographic density than premenopausal women—reduced on average by about 8% over the menopause.

Parity– Number of births is inversely associated with breast density; increasing parity is associated with a decrease in density. Furthermore, pregnancy at an early age decreases breast density.

Body Mass Index– BMI is inversely associated with breast density; overweight and obese women tend to have less dense breasts.

Tamoxifen- Trials show breast density decreases with tamoxifen use, which is proven to decrease breast cancer risk.

Breast Pathology– A personal history of benign breast disease is associated with increased breast density.

Hereditary- Family history of breast cancer is associated with increased breast density.

HRT- Postmenopausal hormone therapies that include both estrogen and progesterone increase breast density.

Alcohol- Intake has also been associated with increased breast density.

These factors are thought to account for only 20-30% of the variation in breast density within the population. Twin studies have shown that most of the variation in mammographic breast density is explained by genetic factors.

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Risk Factors for Breast Cancer	
Factor	**Relative Risk**
Dense breast tissue	**4.0-6.0**
Age	**6.8** (65 or older versus less than 65 years of age)
Genetic mutation (e.g., BRCA)	**3.0-7.0**
Family history of breast cancer	First degree relative– **2.3** Second degree relative– **1.5** Mother and sister affected– **14.0**
Personal history of invasive breast cancer	**6.8**
Hyperplasia	Without Atypia– **2.0** With Atypia– **5.0**
Age at first childbirth	**1.7-1.9** (no children or first child after 30 versus first child before 20)
Late menopause	**1.2-1.5** (menopause at age 55 or older versus before 45)
Early menarche	**1.3** (menarche before age 12 versus 16 or older)
Hormone replacement therapy	**1.0-1.4** (estrogen and progesterone HRT)
Alcohol	**1.0-1.4** (2 drinks per day versus non-drinkers)
Body Mass Index	**1.2** (BMI in the 80th percentile or greater versus the 2oth percentile)

The relative risk represents how much higher the risk of breast cancer is for a person who has the factor compared to a person who does not.

HRBP Studies Assessing Mammographic Density

- **Statin Study**– The goal of this study is to evaluate change in breast density after 1 year of a cholesterol lowering agent (Lipitor). Participants are randomized to receive Lipitor or placebo daily for 1 year to determine the effect Lipitor may have on mammographic density and breast cancer risk. It is hypothesized that Lipitor will reduce breast density, thereby reducing breast cancer risk.
- **Breast Density and Serum Biomarkers–** The goal of this study is to evaluate the link between breast density and other breast cancer risk factors. This study involves a subset of women who previously enrolled in the HRBP. The association between mammographic density and serum levels of vitamin D and IGF (a growth factor) will be determined. It is hypothesized that breast density will be associated with higher vitamin D and IGF levels.
- **Vitamin D Study**– The goal of this study is to evaluate the change in breast density after one year of vitamin D supplementation. Similar in design to the statin study, this study will randomize participants to receive 2000 IU of vitamin D or placebo daily for 1 year to determine the effect on mammographic density. It is hypothesized that vitamin D will reduce breast density, thereby reducing breast cancer risk. This study will be forthcoming pending funding.

For more information contact Fonda Kingsley at 802-656-8502.

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Asparagus and Blackberry Salad

Salad
-1 bunch of fresh asparagus steamed or Blanched, and cut into 4 in spears
-1/2 pint of fresh black berries and/or raspberries
-1/2 each red and yellow bell pepper, diced

Raspberry Vinaigrette
-1/4 cup raspberry vinegar
-1/4 cup of salad oil
-2 tablespoons of sugar

Whisk together vinaigrette ingredients. Mix together salad ingredients and dress with vinaigrette. Serves 4

~Enjoy!

SAVE THE Date!

2009 Vermont-New Hampshire Race for the Cure®

Sunday, July 26th, 2009
Visit www.vtnhcure.org