Breast Cancer Risk Assessment and Prevention

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More than 252,000 cases of breast cancer will be diagnosed this year alone.

About 40,000 women will die from breast cancer this year.
Native American Women

• Lower Incidence of Breast Cancer than Caucasian women.
• Lower Breast Cancer Mortality than Caucasian women.
• Death rates did not change for Native American women.
Breast Cancer

1 in 8 women
SURVIVAL RATES

• If breast cancer is contained in the breast, 10 year survival rates are greater than 95%.

• If breast cancer is found outside of the breast, such as in the lymph nodes or other distant sites, the 10 year survival rates drop.
What Can We Do?

• Emphasis is on early detection.
• The paradigm shift today is how we can prevent or reduce our risk for breast cancer.
SCREENING

• Mammography

• Clinical Breast Exam

• Self Breast Exam
Mammograms reduce breast cancer mortality in women over the age of 40 by 20-30%
SELF-BREAST EXAM

- Three Positions
- In front of the mirror
- In the shower
- Lying Down
RISK FACTORS FOR BREAST CANCER

- Increasing age
- Family History
- Having a personal history of breast cancer
- Early menarche (10 or younger)
- Late menopause (after 55)
- Having a first child after the age of 30 or never having children
<table>
<thead>
<tr>
<th>Familial Factors</th>
<th>Relative Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premenopausal</td>
<td>3.1</td>
</tr>
<tr>
<td>Postmenopausal</td>
<td>1.5</td>
</tr>
<tr>
<td>Bilateral</td>
<td>5.4</td>
</tr>
<tr>
<td>Premenopausal, B/L</td>
<td>8.8</td>
</tr>
<tr>
<td>Postmenopausal, B/L</td>
<td>4.0</td>
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</tbody>
</table>
GENETIC TESTING

• Statistics
  – 5-10% of breast cancer cases are thought to be associated with mutations of BRCA1 or BRCA2
  – A woman with a BRCA1 mutation faces up to an 85% lifetime risk of breast cancer

• If genetic testing is requested by a patient, she should be counseled regarding the limitations of the test and the risks and benefits of testing
BRCA1
85% lifetime risk of breast cancer,
45-60% lifetime risk of ovarian cancer

BRCA2
85% lifetime risk of breast cancer
15% lifetime risk of ovarian cancer
Why Get Tested?

- Enhanced screening and potentially earlier detection
- Prevention / lifestyle changes
- Prophylactic surgery
- Negative result may result in relief
ARGUMENTS AGAINST TESTING

- Cost
- Confidentiality Issues
- Loss of insurability
- Anxiety
Risk Factors

Early Onset of Menarche (10 or younger)

Late Age of Menopause (over 55)
First Live Birth over 30
Or never having children
Obesity Increases Breast Cancer Risk
DIET

Animal fat increases a pre-menopausal woman’s risk by 25%.
ALCOHOL

2 drinks per day nearly doubles a woman’s risk for breast cancer.
## Benign Biopsies

<table>
<thead>
<tr>
<th>Pathologic Change</th>
<th>Relative Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual hyperplasia, papillomas, and sclerosing adenosis</td>
<td>1.6</td>
</tr>
<tr>
<td>Fibroadenoma</td>
<td>1.3</td>
</tr>
<tr>
<td>Atypical hyperplasia</td>
<td>5.0</td>
</tr>
<tr>
<td>Atypical hyperplasia with family history of breast cancer</td>
<td>8.9</td>
</tr>
<tr>
<td>LCIS - lobular carcinoma in-situ</td>
<td>10.0</td>
</tr>
</tbody>
</table>
Hormone Replacement Therapy

- WHI study revealed that estrogen plus progesterone increased a woman’s risk of developing breast cancer.
- This risk was significant after just 4 years.
- The WHI study looking at estrogen only did not reveal a significant risk.
Breast Cancer

Results:

• Breast Cancer risk occurred over time.
• There was a 26% increased risk of developing breast cancer while on HRT.
• This data is consistent with 2 recent studies which reported a greater risk of breast cancer in women who took estrogen-progestin in combination.
PREDICTING BREAST CANCER RISK
GAIL MODEL FOR BREAST CANCER RISK

• For the woman being considered, the probability of developing breast cancer:
  – Within the next 5 years
  – Over the woman’s lifetime

• For comparative purposes:
  – 5-year and lifetime probabilities are provided for a woman of the same age and race as the one being considered, but who is in the lowest category of all other risk factors
OPTIONS FOR HIGH RISK PATIENTS

- Close surveillance
- Prophylactic mastectomy - 90% ↓ risk
- Chemoprevention
- STAR Trial - Tamoxifen & Raloxifene
- MRI study at CCF
INCREASED SURVEILLANCE

• Increase frequency of clinical breast exams
• Does not reduce risk
• Goal is to detect breast cancer early
• Continue to have yearly mammograms
• Role of breast MRI
BILATERAL PROPHYLACTIC MASTECTOMIES

- Significantly reduces risk by at least 90%
- Is not 100% because of residual breast tissue after surgery
- Drastic and permanent procedure
- Psychological issues need to be addressed
TAMOXIFEN/RALOXIFENE CHEMOPREVENTION PROTOCOL

• 5-year regimen of one pill per day:
  – Semi-annual follow-up visits
  – Semi-annual breast exams
  – Annual mammogram
  – Annual pelvic exam
    (if uterus is intact)
# Adverse Effects

<table>
<thead>
<tr>
<th></th>
<th>Tamoxifen</th>
<th>Raloxifene</th>
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<tbody>
<tr>
<td>Uterine cancer</td>
<td>RR 4-0 over 50</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1.2 under 50</td>
<td>-</td>
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<tr>
<td>Deep venous thrombosis</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Pulmonary embolism</td>
<td>+</td>
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The Future in Breast Cancer

- Type 2 diabetes may play a role with one’s risk for developing breast cancer.
- Vitamin D may be an antioxidant which may decrease the risk of breast cancer.
- Other potential risk assessment tools may be used to determine a more accurate assessment of a woman’s risk for breast cancer.
SUMMARY

• Today, women have more options for early detection and prevention of breast cancer.
• Research in risk assessment and prevention is ongoing.
• Today, prevention options include prophylactic mastectomies, and chemoprevention.
• Future clinical trials in this area will help women make better informed choices to decrease their risk and potentially prevent breast cancer.