Questions: In the USA, which population of women are at the highest risk for breast cancer?

A. African-American
B. Caucasian
C. Asian American
Questions: Which of the following is the least common clinical manifestation in the diagnosis assessment of early stage breast cancer?

A. Pain
B. Skin dimpling
C. Nipple inversion
D. Bloody nipple discharge
Objectives

• Incidence, risk factors, presenting signs and symptoms, and diagnostic workup
• Classification and staging
• Standard treatments and common side effects
• Nursing care from diagnosis through survivorship
Facts

- Affects 1 in 8 women in the United States

- Incidence highest amongst Caucasians; incidence lowest in the Asian American population

- Breast cancer specific mortality highest amongst African-American women: Stage for Stage.

- In 2015, there were approx 300,000 new cases of breast cancer. (American Cancer Society, 2015)
5 year Survival Rates

- Localized breast cancer is 99%
- Regional breast cancer is 85%
- Distant (metastatic) breast cancer is 26%
Risk Factors

Female

Family history/genetic risk factors/Ashkenazi Jewish Heritage

Age
Risk Factors cont’d…

- Hormone replacement, birthcontrol
- Early menarche, late menopause
- Prior breast cancer, radiation
- Alcohol use, obesity
Presenting Signs & Symptoms

• Palpable lump in breast or axilla
• Change in shape of breast: retraction of skin or nipple
• Nipple discharge: yellowish or bloody
• Nipple has persistent scaly or eczema-like rash
• Skin changes: thickening, redness, dimpling, inflammation or peau d’orange. (image courtesy of IBC Foundation)
Screening Recommendations

• Early detection improves outcomes

• Mammograms starting at age 40 for average risk women

• Breast MRI used with mammograms for women at higher risk or with dense breast tissue
Diagnostic Workup

- Mammogram
- Breast Ultrasound
- Breast Biopsies:
  - Core needle
  - excisional
- Clip placement
- Breast MRI
Case #1

• Claire is a 56 yo female from Yakima works as a program coordinator at local health care facility.

• PMH: NIDDM, recent rotator cuff repair, multiple surgeries to the C-spine after being hit by a semi-truck, left eye blindness, TAH 1992 with ovaries still intact. Morbidly obese.

• Medications: Metformin, Ibuprofen, Trazodone, Tramadol, Methocarbamol

• Allergies: Penicillin causes rash, amoxicillin causes hives, and Flexeril.

• Family hx mother with breast cancer dx at 56yrs, maternal aunt deceased at age 51 from breast cancer
• Screening mammogram: 1.7 cm focal asymmetry in R UIQ
• Ultrasound: confirmed 1.9 cm mass at 1:00 R breast
• Clinical Breast Exam: firm ~2-2.5cm mass R breast; (-)LAD
• US guided biopsy
• Breast MRI to further evaluate extent of disease
• Breast MRI biopsy, biopsy showed additional disease @ 11:00
Case #1

- Pathology revealed:
  - Invasive Ductal Carcinoma
  - Nottingham Grade 2
  - Estrogen Receptor +
  - Progesterone +
  - Her 2 neu –
  - Ki 67 10%
Case #1: Treatment Plan

Medical Oncology:
- consented for clinical trial starting her on Aromatase Inhibitor “Letrozole” estrogen blocking agent for 6 months +/- P13 kinase inhibitor. She will be monitored while on study for response to treat.
- Medical genetics consultation scheduled.

Surgery:
- after completing the 6 months of the AI she had a lumpectomy with a sentinel lymph node biopsy.

Radiation:
- after surgery hypo-fractionated vs. whole breast radiation.
Breast Cancer Anatomy
4 Types of Breast Cancer

- DCIS-Ductal Carcinoma in Situ
  - clinical stage 0

- LCIS- Lobular Carcinoma in Situ
  - clinical stage 0

- Invasive Ductal Carcinoma- 85%
  - clinical stage 1-4

- Invasive Lobular Carcinoma- 10-12%
  - clinical stage 1-4
Normal Breast
DCIS
Invasive Ductal Carcinoma
(Infiltrating)
Invasive Lobular Carcinoma
Grading Invasive Carcinomas

- Graded using the Nottingham grade (1-3)
  - Nuclear grade 1-3
  - Tubule formation 1-3
  - Mitotic activity 1-3

- The higher the Nottingham grade, the more aggressive the tumor.
TNM Classification

- Tumor size
- Lymph Node Status
- Presence of Metastatic Disease
Prognostic Factors

- Estrogen/Progesterone Receptor status
- Her 2/Neu status
- Lymph Node status
Estrogen Receptor +
Allred score 8 of 8
Her2 IHC: Interpretation

- FDA Approved scoring system
  - 0-1+ = negative
  - 2+ = equivocal (FISH)
  - 3+ = positive
Ki-67 IHC (0-80%)
Staging

• CT scan
• Bone scan
• PET scan
• Biopsy
Treatment Modalities

- Surgery
- Chemotherapy, Targeted therapy
- Radiation
- Endocrine therapy
Surgery Options

- Mastectomy
- Sentinel Node Biopsy
- Lumpectomy
- Axillary Node Dissection
- Reconstruction
Surgical Options?
Radiation Therapy

• Adjuvant Treatment
  • Whole or Partial breast daily for 3-6 weeks
  • Brachytherapy-Contura twice a day for 5 days
  • Intraoperative
  • Proton

• Metastatic Treatment
  • Control of metastatic lesions
Oncology Therapies

• Chemotherapy/Targeted Therapies

• Endocrine Treatment
  • Tamoxifen, AI

• Assays to guide therapy
  • Oncotype DX
  • MammaPrint
**Oncotype Dx Assay**

Recurrence Score® Result

OncoType DX® Breast Cancer Assay uses RT-PCR to determine the expression of a panel of 21 genes in tumor tissue. The Recurrence Score result is calculated from the gene expression results and ranges from 0-100.

The findings are applicable to women who have stage I or II node-negative (N-), estrogen receptor positive (ER+) breast cancer, and will be treated with 5 years of tamoxifen (tam). It is unknown whether the findings apply to other patients outside these criteria.

Clinical Experience: The following results are from a clinical validation study that included 668 patients from the NSABP B-14 study. The study included female patients with stages I or II, N-, ER+ breast cancer treated with 5 years of tam.

Prognosis: 10-Year Risk of Distant Recurrence after 5 Years of Tam, Based on the Recurrence Score Result (from NSABP B-14)

10-Year Risk of Distant Recurrence

**Low Risk**
- Group Average: 7%
- 95% CI: 4%-10%

**Intermediate Risk**
- Group Average: 14%
- 95% CI: 9%-20%

**High Risk**
- Group Average: 31%
- 95% CI: 24%-37%


Laboratory Director(s): Patrick Joseph, MD

No test was developed and its performance characteristics determined by Genomic Health, Inc. The laboratory is regulated under the Clinical Laboratory Improvement Amendments (CLIA) as qualified to perform high-complexity clinical testing. This test is used for clinical purposes. It should not be regarded as investigational or for research. These results are subjective to the ordering physician’s workup.

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When Do We Give Chemo?
Chemotherapy

Neoadjuvant- prior to surgery
• For large, aggressive tumors
• Improve surgical outcomes
• Evaluate response to treatment

Adjuvant-after surgery
• Large tumor
• Her2 positive
• ER/PR negative
• Node positive disease
• High Oncotype DX score
Metastatic Breast Cancer

• Metastatic
  • Stage IV, distant disease
• Goal is to control the disease
• Treatment is changed when there is progression or toxicities/severe side effects
• Can be endocrine treatment, chemotherapy, and targeted therapies
Common Adjuvant Chemotherapies & Treatment

- Adriamycin/Cytoxan
- Taxol
- Herceptin
- Taxotere and Cytoxan
Common Side Effects of Chemotherapy

- Neutropenia
- Nausea and vomiting
- Fatigue
- Alopecia
- Mouth sores
- Hand/Foot erythema
- Peripheral Neuropathy
- Nail changes
Common Adjuvant Endocrine Treatments

- Tamoxifen tablets taken daily for 5+ years to prevent cancer recurrence.
- Aromatase Inhibitors
  - Letrozole
  - Anastrozole
  - Exemestane
Case Study # 2

- Jenny is a 35 year-old, married, mother of 4 year old twins. She lives on Vashon Island. After strenuous work out at the gym she thought she pulled a muscle in her left chest, when it didn’t improve she sought medical help.

- PMH: she is in good health, family hx mother diagnosed with breast cancer at 50, maternal grandmother diagnosed at 48 died of breast cancer. Grand father with prostate cancer.

- Bilateral diagnostic mammogram, Ultrasound, US guided biopsy of the breast and axilla, mammogram to confirm the clip placement

- **DX: Left breast 1:00 nottingham grade 3, Estrogen Receptor + Progesterone receptor+ Her2 neu+, ki67 50% lymph node +**

- Breast MRI revealed 6cm tumor and enlarged axillary nodes and additional work up in the Right breast

- MRI bx of the right breast was negative

- What is next?
Case Study #2
Multidisciplinary Treatment plan

Medical Oncology recommendations:
- Neoadjuvant (prior to surgery) Chemotherapy: Dose Dense Adriamycin/Cytoxan given every 2 weeks for 4 doses followed by weekly Taxol in combination with Perjeta and Herceptin given every 3 weeks for 4 doses. Continue Herceptin for 1 year.
- Staging with a CT of the Chest, abdomen and pelvis and a bone scan to evaluate for metastasis
- Imaging of the Left breast while receiving chemotherapy to evaluate response to treatment
- Port-a-catheter a device for infusions blood draws prevents multiple needle sticks
- Genetic counseling and testing as recommended
- Muga scan to evaluate heart function prior to starting chemotherapy and every 3 months while on Herceptin
- Endocrine therapy will be recommended after completing chemotherapy and radiation therapy with either tamoxifen or aromatase inhibitor + ovarian suppression

Surgery recommendations:
- Left breast mastectomy with a sentinel lymph node biopsy.

Radiation therapy recommendations:
- Radiation to the breast and lymph nodes recommended.
Care of the Patient

Am I going to live?

Can I work?

Will I lose my hair?

Am I going to live?
Case Study #2
Nursing Plan of Care

• Education for port placement, access to care, side effects, review supportive care prescriptions.

• Prior authorize of prescriptions (growth factors)

• Supportive care or referrals needed

• Coordinate FMLA
Case Study #2
Phone call after 1st dose of chemotherapy

• Evaluate Jenny’s tolerance of the treatment
• Nausea and the use of her anti-nausea medication
• Activity level
• Diet
• Fatigue
• Insomnia due to steroids?
• Constipation
Nurse Navigation

- Education regarding treatment and common side effects. NCCN guidelines

- Coordination of Care: making sure patients are receiving the care recommended between disciplines.

- Advocacy: making sure you stand by the patient

- Supportive care: nutrition, social work, child-life services.

- Symptom management: expect changes after biopsy
Symptom Management Resources

• **ONS PEPS** - Use current evidence-based practice for symptoms.

• **NCCN guidelines** - Grading of symptoms to improve communication with the team, provide education for patients.
Case #3

- Mary 66yrs old recently retired RN from Seattle worked in the ICU. She is divorced, no children. She had a screening mammogram that initiated the breast cancer work up.

- NKA

- PMH: Osteoporosis, Rosacea, Hypertension, Functional heart murmur, normal ECHO, Dry eyes ,ocular rosacea, back pain – occasional, GERD. No family hx of breast or ovarian cancer

- Medications: Lisinopril/HCTZ ,Doxycycline, Simvastatin, Restasis, Ranitidine, Fish oil, Vitamin D3, Multivitamin ,Calcium citrate with magnesium, zinc, D3,Lecit Flaxseed oil Lutein,Co-enzyme Q10, Vitamin C ,Vitamin B12,Vitamin B, Iron 28 mg  ASA 81 mg PO daily.

- Imaging work up: Mammogram, breast US, biopsy of the Right breast mass and the axillary node, breast MRI

- Diagnosis: Right breast 6:00 invasive ductal grade 3 LVI widely present ER-, PR-, Her2- lymph node +

- NEXT?
Case #3 Multidisciplinary Treatment Plan

**Medical Oncology Treatment recommendation:**
- PET/CT scan, brain MRI to evaluate extent of disease
- MUGA to evaluate heart function
- Port-a-cathater for chemotherapy infusions and blood draws
- Neo adjuvant chemotherapy with weekly Taxol x 12 doses followed by dose dense Adriamycin/Cytoxan every 2 weeks for cycles (no chemotherapy clinical trials available for TNBC at this time)

**Surgery recommendations:**
- Right breast mastectomy with axillary lymph node dissection would be the standard of care however if she has dramatic response to treatment would consider sentinel lymph node biopsy

**Radiation oncology recommendations:**
- Radiation therapy recommended final plan will be determined after surgery
Survivorship...
Questions???

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