Mass General Brigham
Mass General Cancer Center

# OCN Review Course: Breast Cancer

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# Agenda

- **Statistics/Incidence**
- **Risk Factor Assessment**
- **Screening**
- **Pathophysiology**
- **Clinical Presentation**
- **Management of early and late-stage disease**
- **Survivorship**
- **Resources**

“Whether you are a mother or a father, or a husband or a son, or a niece or a nephew or uncle, breast cancer doesn’t discriminate.”

–Stephanie McMahon

# Breast Cancer accounts for 12.5 % of all new annual cancers worldwide!

https://www.wcrf.org/cancer-trends/worldwide-cancer-data/

# Breast Cancer Statistics

- Most common female cancer in the U.S.
- Average lifetime risk in women: 1 in 8
- Incidence has increased by 0.5% per year
- Second most common cause of cancer death
- There are more than 3.8 million breast cancer survivors living in the U.S.!
- Male breast cancers: 2710 new cases invasive
- White women more likely to be diagnosed than Black, Asian or Hispanic women
- Black women more likely to present at advanced stage and have aggressive type breast cancer
- Black women more likely to die from breast cancer

# Risk Factors

**Non-modifiable**

- Middle age and female
- Personal and family history
- Gail Model (>1.7% in >35 yoa)
- ADH
- LCIS/ALH
- Dense breasts
- Genetic mutation carriers
- Ashkenazi Jewish heritage (1/40 have BRCA+)
- Thoracic radiation
- Early menarche (<12)
- Late menopause (>55)
- DES exposure

**Modifiable**

- Socioeconomics
- Nulliparous
- Not breastfeeding
- Alcohol intake
- Overweight/Obesity
- Endogenous hormones in postmenopause if taken > 5 years

https://www.cdc.gov/cancer/breast/basic_info/risk_factors.htm

# Screening for breast cancer

**Mammogram is a low dose xray of the breast.**

**Breast cancer found on screening mammograms tend to be smaller and less likely to have spread outside the breast.**

**Size and spread are some of the most important factors that predict prognosis.**

**Breast MRI uses radio waves and strong magnets to make pictures of the breast.**

- **Used in addition to annual screening mammogram in certain cases**
  - **High risk for breast cancer**
  - **Diagnostics**
  - **Check for breast implant leak**

https://www.cancer.org/cancer/types/breast-cancer/screening-tests-and-early-detection/american-cancer-society-recommendations-for-the-early-detection-of-breast-cancer.html

# Average Risk Screening

**Breast Cancer Screening Guidelines For Women with Average Risk**

| Population | Test or Procedure | Frequency |
|---|---|---|
| 40-44 years | Mammogram | Should have the opportunity to begin annual screening. |
| 45-54 years | Mammogram | Annually |
| 55 years and older | Mammogram | Should switch to mammograms every 2 years, or can continue yearly screening. Screening should continue as long as a woman is in good health and is expected to live at least 10 more years. |

Visit www.cancer.org for more information about the American Cancer Society Guidelines for the Early Detection of Cancer

American Cancer Society www.cancer.org

# High Risk Screening

**Residual risk >or=20% (largely family hx based models)**

- Mammogram and Breast MRI annually
- Depends on genetic mutation or youngest age of breast cancer in the family history (or start at 40)
- Mammogram not prior to age 30
- Breast MRI not prior to age 25
- Clinical breast exam every 6-12 months starting when risk identified but not before age 21
- Consider referral to genetics counselor

Source:V1.2022 NCCN Guidelines Breast Cancer Screening and Diagnosis https://www.nccn.org/professionals/physician_gls/pdf/breast-screening.pdf

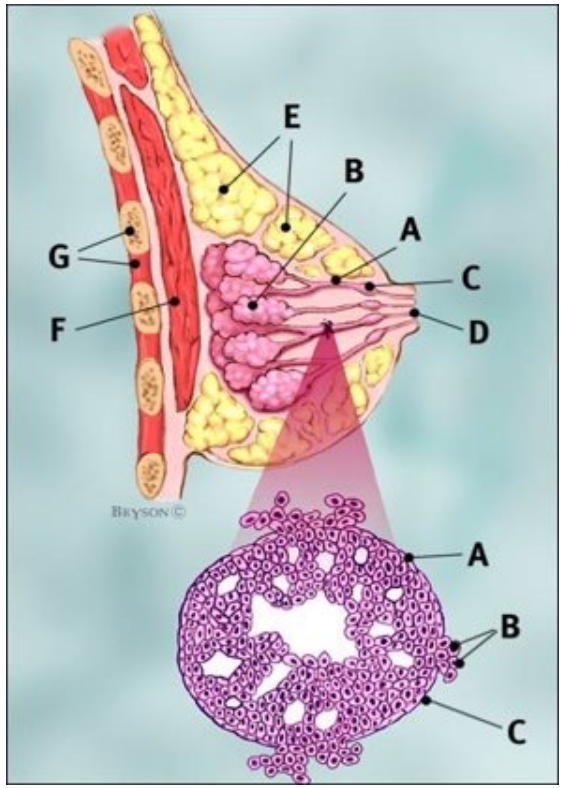
# High Risk Screening

**H/o thoracic radiation therapy between ages of 10 and 30**

- Increased risk of breast cancer
- Age <25: annual exams starting 8 years after RT
- Age >25: every 6-12 month breast exams
- Mammogram starting at 30
- Breast MRI starting at 25
- Breast awareness counseling
- Consider further risk reduction strategies

Source:V1.2022 NCCN Guidelines Breast Cancer Screening and Diagnosis https://www.nccn.org/professionals/physician_gls/pdf/breast-screening.pdf

# Anatomy and Physiology




## Breast Anatomy

**Breast profile:**

**A** Ducts
**B** Lobules
**C** Dilated section of duct to hold milk
**D** Nipple
**E** Fat
**F** Pectoralis major muscle
**G** Chest wall/rib cage

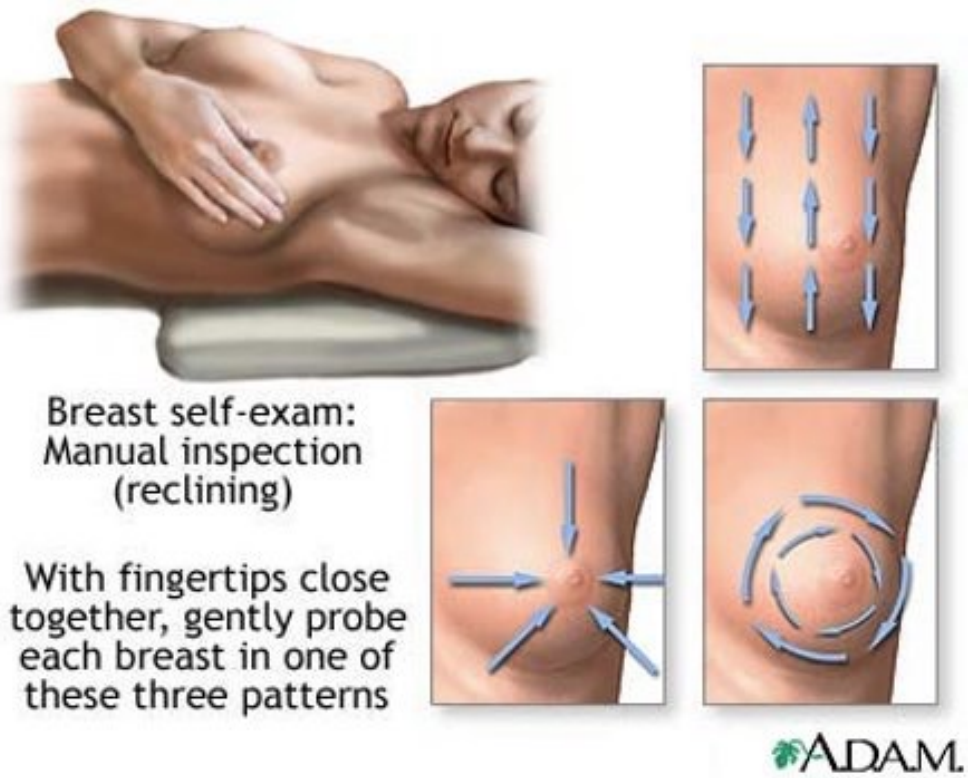
**Enlargement:**

**A** Normal duct cell
**B** Ductal cancer cells breaking through the basement membrane.
**C** Basement membrane

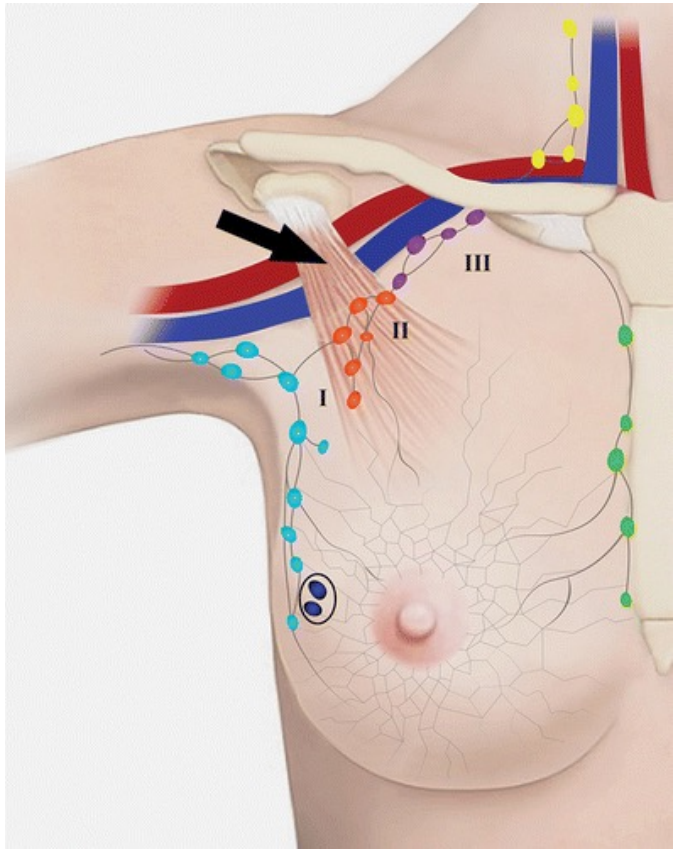
# Clinical Presentation

**Early-Stage Breast Cancer**
Asymptomatic with abnormal screening mammogram or MRI

Breast mass or thickening
Skin changes
Breast pain
Nipple inversion
Nipple discharge
Lymphadenopathy



# Lymphadenopathy of the regional nodes




**Level I (Blue): low axillary**

**Level II (Red): mid-axillary**

**Level III (Purple): high axillary**

**Drainage routes:**
**Axillary**
**Interpectoral**
**Internal mammary**

https://pubs.rsna.org/doi/full/10.1148/radiol.2020192534#:~:text=Axillary%20LNs%20are%20divided%20into,%2C%20interpectoral%2C%20and%20internal%20mammary
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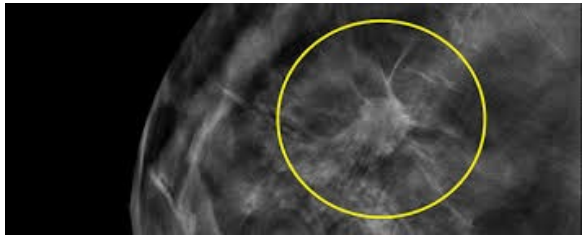
# Abnormal Imaging

Abnormal Mammogram

- Mass
- Calcifications
- Irregular shape
- Spiculated margins



Ultrasound

- Solid vs fluid filled

Breast MRI with gadolinium contrast

- Can locate small breast lesions missed by mammogram
- Do not do well identifying calcifications

https://www.ncbi.nlm.nih.gov/books/NBK12642/

# Knowledge Check

**Which are considered nonmodifiable risk factors for breast cancer?**

**A. Dense breast tissue**
**B. Smoking**
**C. Italian descent**
**D. Personal and family history**
**E. Late onset menses**

# Management

# Management for Early-Stage Breast Cancer

**Surgery**

- Breast-conserving treatment
- Mastectomy +/- Reconstruction
- Sentinel lymph node biopsy vs. full axillary dissection

**Breast Radiation**

- External radiation
- Brachytherapy
- Whole or partial breast radiation
- Include axillary +/- supraclavicular lymph node fields

**Medical Therapy**

- Endocrine therapy
- Targeted therapy
- Chemotherapy
- Immunotherapy
- Clinical Trials

**Genetic counseling/testing**

**Social/Mental Health services**

**Nutrition and Lifestyle medicine**

**Integrative therapies**

# Case Study – B.C.

45 year-old premenopausal woman without personal history, but with family history of breast cancer, presented to breast clinic with an abnormal screening mammogram. Diagnostic mammogram with spot views and ultrasound showed a 2cm  irregular and spiculated mass in the lower outer right breast. Biopsy was recommended. A core needle biopsy was done that was positive for malignant cells, invasive ductal cancer. Genetic testing for BRCA 1,2 was negative for mutation. Breast conserving surgery was recommended. The patient underwent a lumpectomy and sentinel lymph node dissection (SLND), two nodes were removed.

Pathology:

- 2.1 cm, grade 2 infiltrating ductal carcinoma, with 0/2 sentinel lymph nodes
- Estrogen and progesterone receptors +
- Her-2/neu protein negative
- Clear margins

# Staging: TNM Classification

- Stage 0 — Tis N0 M0
- Stage I — T1 N0 M0
- **Stage IIA —** T0 N1 M0; T1 N1 M0; **T2 N0 M0**
- Stage IIB — T2 N1 M0; T3 N0 M0
- Stage IIIA — T0 N2 M0; T1 N2 M0; T2 N2 M0; T3 N1 M0; T3 N2 M0
- Stage IIIB — T4 N0-2 M0
- Stage IIIC — Any T N3 M0
- Stage IV — Any T Any N M1

| Stage | 5-year Relative Survival Rate |
|---|---|
| 0 | 100% |
| I | 100% |
| II | 93% |
| III | 72% |
| IV | 22% |

# Case Study – B.C.

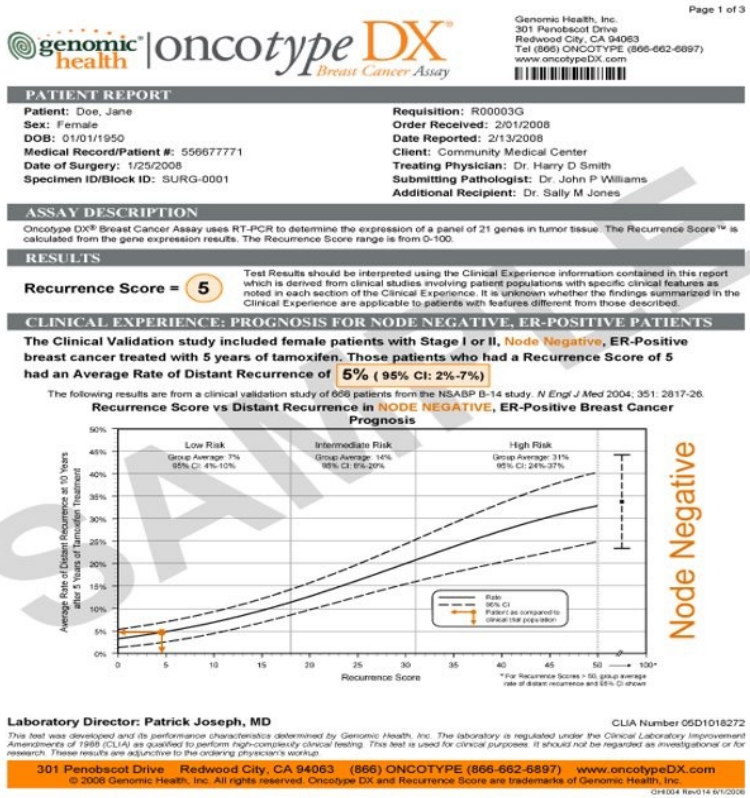
What factors determine this patient's risk of breast cancer recurrence?

- Stage (TNM)
- Grade 0-3
- Presence or absence of hormone receptors
- Her2neu oncogene overexpression
- Age or menopausal status

What type of adjuvant therapy should she receive?

- Radiation
- Hormone therapy
- ?Chemotherapy - what is the relative benefit?

# Prognostic tool for node negative, ER+ breast cancer



genomic health | oncotype DX® Breast Cancer Assay

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Genomic Health, Inc.
301 Penobscot Drive
Redwood City, CA 94063
Tel (866) ONCOTYPE (866-662-6897)
www.oncotypeDX.com

**PATIENT REPORT**

**Patient:** Doe, Jane
**Sex:** Female
**DOB:** 01/01/1950
**Medical Record/Patient #:** 556677771
**Date of Surgery:** 1/25/2008
**Specimen ID/Block ID:** SURG-0001

**Requisition:** R00003G
**Order Received:** 2/01/2008
**Date Reported:** 2/13/2008
**Client:** Community Medical Center
**Treating Physician:** Dr. Harry D Smith
**Submitting Pathologist:** Dr. John P Williams
**Additional Recipient:** Dr. Sally M Jones

**ASSAY DESCRIPTION**

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

**RESULTS**

**Recurrence Score = 5**

Test Results should be interpreted using the Clinical Experience information contained in this report which is derived from clinical studies involving patient populations with specific clinical features as noted in each section of the Clinical Experience. It is unknown whether the findings summarized in the Clinical Experience are applicable to patients with features different from those described.

**CLINICAL EXPERIENCE: PROGNOSIS FOR NODE NEGATIVE, ER-POSITIVE PATIENTS**

**The Clinical Validation study included female patients with Stage I or II, Node Negative, ER-Positive breast cancer treated with 5 years of tamoxifen. Those patients who had a Recurrence Score of 5 had an Average Rate of Distant Recurrence of 5% ( 95% CI: 2%-7%)**

The following results are from a clinical validation study of 668 patients from the NSABP B-14 study. *N Engl J Med* 2004; 351: 2817-26.

**Recurrence Score vs Distant Recurrence in NODE NEGATIVE, ER-Positive Breast Cancer Prognosis**



**Laboratory Director: Patrick Joseph, MD**

CLIA Number 05D1018272

*This test was developed and its performance characteristics determined by Genomic Health, Inc. The laboratory is regulated under the Clinical Laboratory Improvement Amendments of 1988 (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 adjunctive to the ordering physician's workup.*

301 Penobscot Drive Redwood City, CA 94063 (866) ONCOTYPE (866-662-6897) www.oncotypeDX.com



OH004 Rev014 6/1/2006



RT-PCR to determine expression of 21 genes in tumor tissue

Predicts the value of chemotherapy in addition to hormone therapy

Assumes treatment with 5 years hormone therapy (tamoxifen)

Recurrence score ranges from 0-100

For B.C. - low recurrence score of 5 means NO chemotherapy recommended

# Adjuvant endocrine therapy

Tamoxifen: blocks the effect of estrogen on target organs (SERM)

- 40% reduction in breast cancer recurrence
- 30% reduction in breast cancer mortality

Ovarian suppression (GnRH analogs): reduces ovarian estrogen production, causes medically induced menopause

Given with tamoxifen or AI

Aromatase inhibitors: inhibits systemic estrogen production

- Only effective if postmenopase (naturally, medically or surgically induced)
- Reduce recurrence risk by 50% if taken for 5 years (5-10 years extended therapy for higher risk)

# Nursing Considerations for Patients on Tamoxifen

Treatment adherence and tolerance monitoring

Patient education of side effects (vasomotor, sexual, arthrlagia/myalgia) and adverse events (DVT, benign gynecologic disorders, uterine cancer)

Side effect management

Annual GYN exam and contraception counseling

Annual Ophthalmologic exam

Smoking cessation and avoidance

CVD screening and prevention

Concurrent medication list (especially antidepressants and herbals)

Exercise counseling, weight management

# Is more treatment better?

**ATLAS Study: Randomized study 5 versus 10 years of adjuvant tamoxifen**

Pros

- Lower cumulative risk of breast cancer recurrence during years 5-14: 21.4% for extended tam; 25.1% for controls
- Lower breast cancer mortality during years 5-14: 12.2% for extended tam; 15% for controls
- Reduction in overall mortality: RR 0.93 (p=0.04)
- Fewer contralateral breast cancers and bone fractures with extended tamoxifen

Cons

- Higher rates of PE (RR 1.87, +20 events), endometrial cancer (RR 1.74, +53 events) with extended tamoxifen

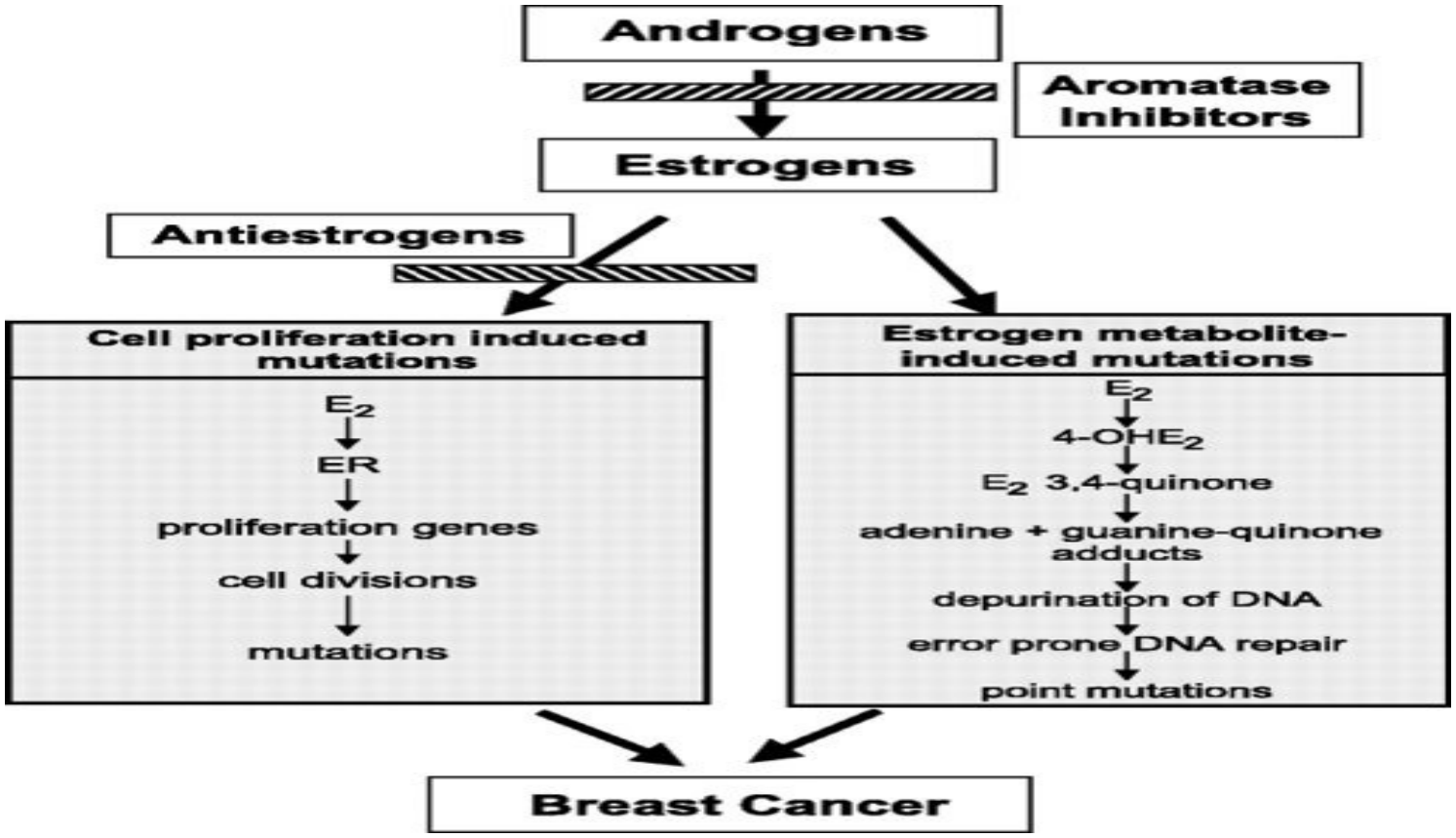
Lancet, 2012

# Case Study – B.C.

What if B.C. was 65 years old?

What treatment recommendation would be different?

# Hormone therapy anti-estrogen versus aromatase inhibitor

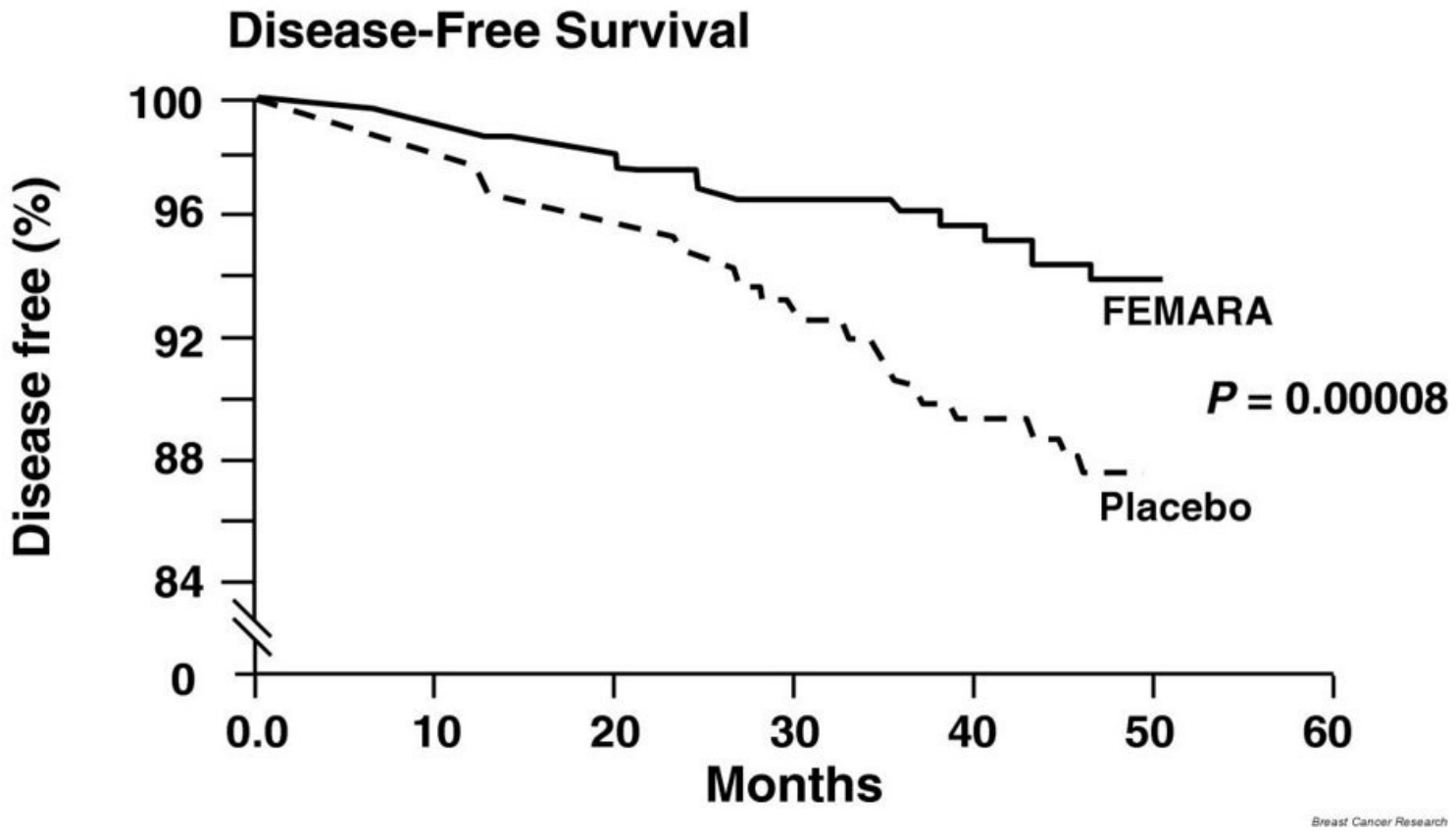



Both stop tumor growth

Tamoxifen blocks estrogen from reaching a cancer cell - by blocking the estrogen receptor signal the cells die.

Aromatase inhibitors inhibit the change from androgens to estrogen, lowering total body estrogen, causing an "estrogen deprivation" state.

# MA 17: Letrozole versus placebo following 5 years of Tamoxifen




Adapted from Goss et al. Pritchard and Whelan Breast Cancer Res 2005

# ATAC Trial Results

The Arimidex, Tamoxifen, Alone or in Combination (ATAC) trial compared the efficacy and safety of anastrozole (1mg) with tamoxifen (20mg) daily for 5 years as adjuvant treatment for postmenopausal women with early-stage hormone receptor positive breast cancer.

Significant improvements in the anastrozole group compared to tamoxifen group

- Disease free survival
- Time to recurrence
- And time to distant recurrence
- Lower recurrence rates on anastrozole

https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(10)70257-6/fulltext

# ATAC Trial: side effects AI versus tamoxifen

| | % of patients | | |
|---|---|---|---|
| | Anastrozole | Tam | P value |
| Hot flashes | 35.7 | 40.9 | <0.0001 |
| Vaginal bleeding | 5.4 | 10.2 | <0.0001 |
| Vaginal discharge | 3.5 | 13.2 | <0.0001 |
| Endometrial cancer | 0.2 | 0.8 | 0.02 |
| Ischemic cerebrovascular | 2.0 | 2.8 | 0.03 |
| Venous thromboembolic | 2.8 | 4.5 | 0.0004 |
| Joint symptoms | 35.6 | 29.4 | <0.0001 |
| Fractures | 11.0 | 7.7 | <0.0001 |
| Hysterectomy | 1.3 | 5.1 | <0.0001 |

Zarwan, 2013

# Nursing Considerations for Patients on Aromatase Inhibitors

Treatment adherence and tolerance monitoring

Patient education of side effects (vasomotor, sexual, arthralagia/myalgia, bone loss, elevated CVD risk - lipids)

Side effect management

Sexual side effect management, use of non-hormonal vaginal moisturizers or topical estrogens

Bone density study (DXA) at baseline and every 2 years, anti-fracture medication if indicated, lifestyle counseling for bone health

Smoking cessation and avoidance

CVD screening and prevention (BP, Lipids)

Concurrent medication list (herbals, estrogen bioequivalents)

Exercise counseling, weight management

# Case B.C.

- 45 year-old premenopausal woman with an abnormal screening mammogram. Biopsy positive for malignancy.
- Pathology: 2.1 cm, grade 2 infiltrating ductal carcinoma, with negative lymph nodes
  - Estrogen and progesterone receptors +
  - **Her-2/neu gene overexpression aka "POSITIVE"**

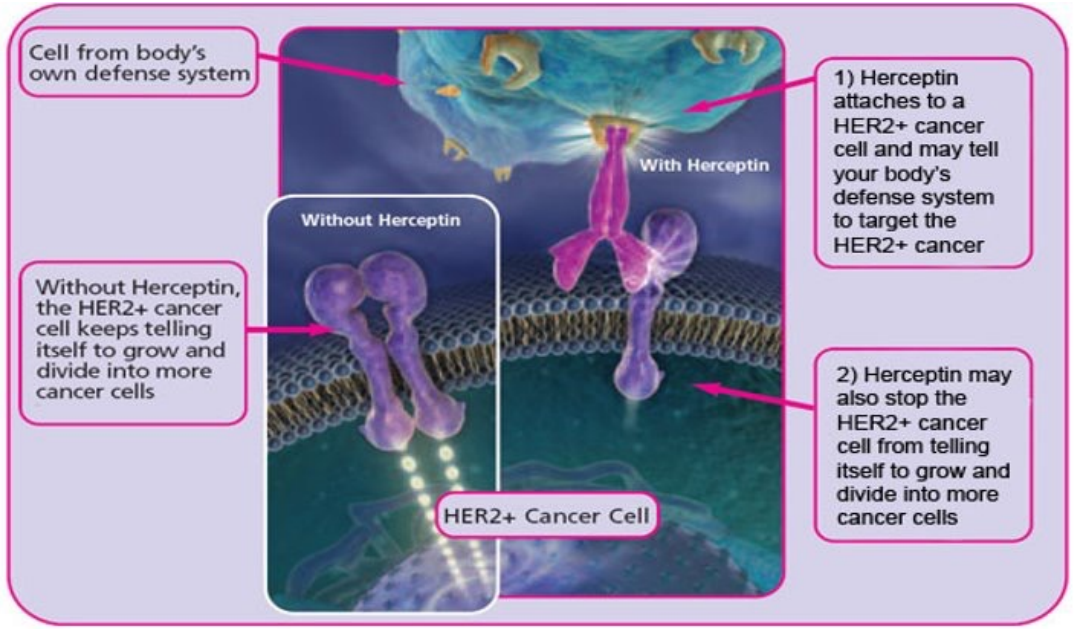
**QUESTION: What does this mean?**

**A. More aggressive & higher risk of recurrence**
**B. Less aggressive and lower risk of recurrence**
**C. Eligible for targeted treatment**
**D. Both A & C**

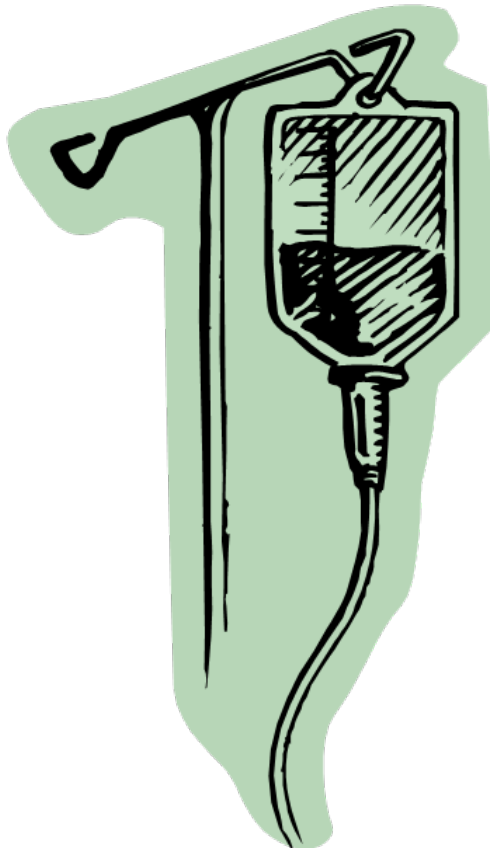
# Her2neu Oncogene Overexpression

- 20-30% of breast cancers
- More aggressive
- More likely to recur
- Immunohistochemistry (0-3+)
- FISH (amplified/not amplified)

## Monoclonal antibody therapy



# Who gets chemotherapy?



Risk versus benefit

- Positive regional lymph nodes
- Tumor > 2cm
- High Oncotype Dx Score
- Her 2 neu oncogene overexpression
- Triple negative invasive disease
- Advanced stage disease

# Chemotherapy for Breast Cancer

- **How does it work?**
  - Kills rapidly dividing cancer cells
- **Goal is to stop or slow the spread of cancer**
  - Treatment: curative
  - Palliative: ease cancer symptoms
- **Used with other treatments**
  - Neo-adjuvant "pre-operative"
  - Adjuvant "post-operative"
  - Combined with immunotherapies
- **Management**
  - Toxicities and quality of life "balance"
  - Long term side effects

# Monoclonal antibody therapy in Combination with Chemotherapy

- Taxol (paclitaxel) + Herceptin (trastuzumab) (for small Her2+ early-stage node neg breast cancers)
- TCHP -> with chemo + Herceptin (trastuzumab) + Perjeta (pertuzumab)
- AC->Taxol and Herceptin
- Hylecta (SC version of Herceptin)
- PHESGO (SC version of Herceptin + Perjeta
- Adjuvant therapy duration 1 year
- Cardiac monitoring every 3 months with ECHO or MUGA to assess for drop in LVEF (risk for CHF)

# Case –B.C.

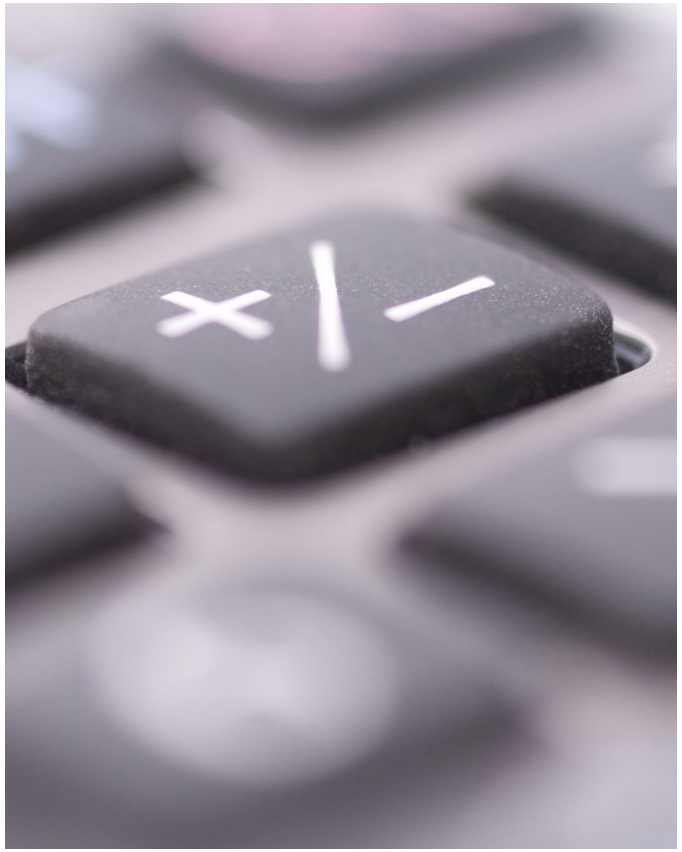
- 45 year-old premenopausal woman with an abnormal screening mammogram. Biopsy positive for malignancy. Pathology: 2.1 cm, grade 3 infiltrating ductal carcinoma, with negative lymph nodes
  - Estrogen and progesterone receptors NEGATIVE
  - Her-2/neu NEGATIVE
- QUESTION: Does B.C. get chemotherapy?

A. Yes

B. No

# Triple Negative Breast Cancer

- 10-15% of all breast cancers
- No overexpression of Her2neu oncogene
- No ER, PR receptors
- Faster growing
- Worse prognosis
- More common
  - younger women
  - *BRCA1* mutation carriers
  - African American or Hispanic



# Common Regimens for Neo or Adjuvant Therapy

Adjuvant Regimens

- Dose Dense Adriamycin+Cytoxan -> Taxol
- Taxotere+Cytoxan
- Herceptin+Taxol
- TCHP Taxotere+Carboplatin+Herceptin+Perjeta
- Keytruda (pembrolizumab) immune checkpoint inhibitor + chemotherapy (Carboplatin+paclitaxel -> doxorubicin + cyclophosphamide) pre-operatively for high-risk early-stage triple negative breast cancer followed by surgery followed by Keytruda alone (2022)

# Nursing Considerations for the Patient on Chemotherapy

- Fatigue
- Nausea, vomiting
- Constipation, diarrhea
- Heartburn, GERD
- Skin changes, rashes
- Alopecia
- Mucositis
- Immune suppression
- Anemia
- Thrombocytopenia
- Kidney dysfunction
- LFT changes
- Fertility concerns
- Heart problems
- Lung problems, pneumonitis
- Taste changes
- Anorexia
- Dehydration, Electrolyte changes
- Myalgia/arthralgia
- Bone pain
- Sleep disorders
- Body image concerns
- Sexual side effects
- Deconditioning
- Immunotherapy adverse effects
- Death

# Case B.C.

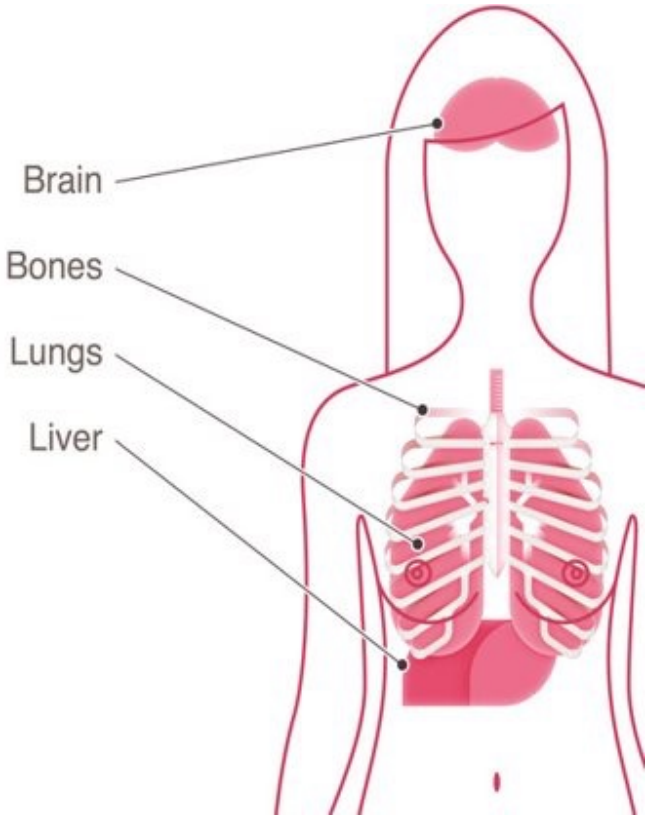
B.C. completes adjuvant chemotherapy followed by 6 weeks of radiation therapy for triple negative breast cancer.

She goes in to see her PCP for routine visit 4 years later complaining of 3 months of persistent lower back pain "dull ache" unrelieved by rest/heat/stretching and over the past month increased fatigue.

What are your concerns?

# Sites of Breast Cancer Metastases

- Bone
  - Pain
  - Swelling
  - Fractures
- Lung
  - Cough, chest pain, abnormal CXR, constitutional s/s
- Liver
  - Jaundice, itching, rash, abdominal pain
  - Elevated transaminases
  - Poor appetite, nausea, vomiting, weight loss
- Brain
  - HA, vision changes, seizure
  - Nausea & vomiting
  - Mood and personality changes




(National Breast Cancer Foundation, (2012)

# Regimens for Metastatic Breast Cancer

- CDK 4/6 Inhibitors + Hormone therapy AI or Faslodex (fulvestrant) IM
- Truqap (capivasertib) + Faslodex, for those with PIK3CA/AKT1/PTEN-alterations*
- Trodelvy (sacituzumab govitecan-hziy)
- Keytruda (pembrolizumab) + chemotherapy
- Taxane based – docetaxel, paclitaxel, nab-paclitaxel

*Liquid biopsy assays (blood tests) being used to help guide treatment decisions

- Anthracyclines – doxorubicin, epirubicin, doxorubicin
- Xeloda (capecitabine)
- Halaven (eribulin mesylate)
- vinorelbine
- Gemcitabine
- And more

# Her2+ Management in Advanced Stage Disease

Herceptin (trastuzumab) + Perjeta (pertuzumab)

- HER-2 receptor/ EGFR inhibitor
- Can be given IV or in SC form
- Can be combined with chemotherapy
- Requires cardiac monitoring
- Low side effect profile

Ado-trastuzumab emtansine (Kadcyla)

- Used in early and late-stage breast cancer
- Chemotherapy + anti-Her2 drug conjugate
- IV every 3 weeks
- Cardiac monitoring, risk of pneumonitis, LFTs, low PLT, CIPN

Enhertu (ado-trastuzumab emtansine)

- Can be used in patients with "low Her2+" pathology
- IV every 3 weeks
- Cardiac monitoring with ECHO or MUGA
- Risk of pneumonitis
- Nausea requires aggressive management

# Oral Her2+ Targeted Therapies

- Nerlynx (neratinib) - oral tyrosine kinase inhibitor
  - Indications
    - Extended adjuvant therapy for early stage Her2+ breast cancer
    - Advanced stage breast cancer (with chemotherapy)
- Tuksya (tucatinib) - oral tyrosine kinase inhibitor
  - Indication
    - Advanced stage breast cancer
    - Given with Xeloda (capecitabine) and Herceptin (trastuzumab)

# Oral targeted therapy in hormone + metastatic breast cancer

CDK 4/6 Inhibitors + aromatase inhibitors or fulvestrant

- palbociclib (Ibrance)
- ribociclib (Kisqali)
- abemaciclib (Verzenio)

MTOR-inhibitor + aromatase inhibitor

- everolimus (Afinitor)

Piqray (alpelisib)

- PIK3CA Mutation
- With Faslodex (fulvestrant)
- Hyperglycemiauq

Truqap (capivasertib) + Fulvestrant *

Lynparza (olaparib): for BRCA +

Side effects and monitoring

- Unique side effect profiles
- Laboratory monitoring
- Adherence/compliance
- Cost and coverage

Nurse provided patient education is key!

# BRCA ½ Her2- Metastatic Breast Cancer PARP Inhibitors

| | Olaparib (Lynparza) | Talozoparib (Talzenna) |
|---|---|---|
| Dose | 300mg PO BID | 1mg PO daily |
| AE | Bone marrow suppression, nausea/vomiting, rash, pneumonitis, secondary malignancies (MDS/AML) | Bone marrow suppression, nausea/vomiting, secondary malignancies (MDS/AML) |
| Monitoring | CBC and renal function prior to 1st dose and monthly thereafter | |
| Management | Dose reduce for adverse events, discontinue for pneumonitis. Available as tablets and capsules, which are not interchangeable due to bioavailability differences | Dose reduce for decrease hemoglobin, neutropenia, and thrombocytopenia |

MOA: Blocks PARP enzymes from repairing double-stranded DNA breaks in BRCA1/2 deficient tumor cells, leading to cell death

# Nursing Considerations for patients on targeted therapies

- Infusion reactions
- Cardiotoxicity
- Hepatotoxicity
- Pneumonitis
- Dermatologic – rash
- Diarrhea
- Nausea
- Myelosuppression
- Electrolyte abnormalities

# Oncologic Emergencies

- Spinal cord compression
- Superior Vena Cava Disease
- Pericardial Tamponade
- DVT/PE
- Hypercalcemia
- Tumor Lysis Syndrome
- Arrhythmia
- Blood disorders (thrombocytopenia, anemia), DIC
- Febrile neutropenia
- Sepsis

(Smith&Toonen, 2007)

# Care of the Cancer Survivor

Ongoing survivorship care, coordination with primary care

Multidisciplinary care

- Radiation oncology, surgery
- Physical therapy (lymphedema, post-surgical pain, deconditioning, prehab/rehab)
- Endocrine
- Sleep medicine
- Neurology

- Rheumatology
- Gynecology
- Uro-gynecology
- Surgical
- Psych/mental health/SW/Peer support
- Palliative care, pain service
- Cannabis therapeutics
- Integrative therapies
- Healthy lifestyle counseling and Nutrition services

# Healthy lifestyle counseling

- Being physically active – exercise!
- Maintaining a healthy weight
- Abstaining/limiting alcohol
- Avoiding smoking
- Eating plant predominant diet

# Resources

National Cancer Institute Breast Cancer: https://www.cancer.gov/types/breast/hp

NCCN Breast Cancer Treatment Guidelines: https://www.nccn.org/guidelines/

American Society of Clinical Oncology Breast Cancer Guidelines: https://old-prod.asco.org/practice-patients/guidelines/breast-cancer

American Cancer Society Breast Cancer Information: https://www.cancer.org/cancer/breast-cancer.html

American Institute of Cancer Research: https://www.aicr.org/

MGH Lifestyle Medicine: https://www.massgeneral.org/cancer-center/patient-and-family-resources/supportive-care/lifestyle-medicine

# In closing

**Care of the patient with breast cancer occurs across the continuum from diagnosis through survivorship and may span over a decade. Treatments are constantly changing and becoming more complex as new targeted therapies emerge.**

Care of the nurse is critical:

- Assessment
- Education, providing information and resources
- Compassionate, holistic care to patient and family

# Thank you.


Mass General Brigham