Breast Cancer Treatment: Basics for the Primary Care Provider

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Breast Cancer Treatment

Basics for the Primary Care Provider

Sarah Hirsh/Cokenakes PGY2
Disclaimers:

1. I have no conflicts of interest.
2. Serious topic = fewer dog photos.
Learning Objectives:

1. To review the prevalence of breast cancer and the mortality rate of breast cancer in the United States.
2. To understand breast cancer staging and its role in prognostication.
3. To understand the therapies offered for the treatment of non-metastatic, invasive breast cancer and their side effects.
4. To review the role of the PCP in caring for patients undergoing treatment for breast cancer and those in remission.
Topics not addressed in this lecture:

1. Routine breast cancer screening
2. Comprehensive management of breast cancer – this is an overview for the target audience of primary care providers.
3. We will cover DCIS and discuss metastatic breast cancer briefly but will largely focus on non-metastatic invasive disease.
Case #1: M.T.
Case #1: M.T.

67 y/o F from Liberia with PMH HTN presents to the E.D. on 9/10/18 with a CC of “itchy right breast.”

Ultrasound showed, “masslike lesion in the right breast incompletely evaluated on this study. Further evaluation with mammogram is recommended.”
Case #1: M.T.

9/13/18: Became this patient’s PCP, ordered diagnostic mammogram and biopsy.

9/20/18: Pathology back; invasive high grade carcinoma, ER-, PR-, ERBB2-

9/28/18: Seen for the first time by medical oncology for triple negative breast cancer.
Case #1: M.T.

10/3/18: CT CAP with metastatic disease involving the thoracic and lumbar spine. Patient seen several times over the course of the next months by medical oncology, but refused chemotherapy. Palliative radiation in November, 2018.

12/27/18: Passed away on home hospice.
Breast Cancer Prevalence in the U.S.

- Approximately 300,000 new cases of breast cancer in the United States each year.

- 1 out of every 8 women will have a diagnosis of breast cancer at some point in her life.
Breast Cancer Mortality in the U.S.

Overall mortality from breast cancer has been declining over the past decades.

Disparities in mortality remain apparent.
Breast Cancer Risk Factors

- Older age
- Female gender
- Positive family history
- Genetic variants associated with breast cancer
- Dense breast tissue
- Hormone replacement therapy
- Prior radiation to the chest
Breast Cancer Staging and Classification
DCIS
Stage 0 Breast Cancer
## TNM Anatomic Staging

(T) = tumor size  
(N) = nodal involvement  
(M) = presence or absence of metastasis

<table>
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<th>When T is...</th>
<th>And N is...</th>
<th>And M is...</th>
<th>Then the stage group is...</th>
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<td>Any T</td>
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</tbody>
</table>
Fig. 48.3  T1 is defined as a tumor 20 mm or less in greatest dimension. T1mi is a tumor 1 mm or less in greatest diameter (not illustrated). T1a is defined as tumor more than 1 mm but not more than 5 mm in greatest dimension; T1b is defined as tumor more than 5 mm but not more than 10 mm in greatest dimension; T1c is defined as tumor more than 10 mm but not more than 20 mm in greatest dimension.

Fig. 48.4  T2 (above dotted line) is defined as tumor more than 20 mm but not more than 50 mm in greatest dimension, and T3 (below dotted line) is defined as tumor more than 50 mm in greatest dimension.
Fig. 48.5  T4 is defined as a tumor of any size with direct extension to chest wall and/or to the skin (ulceration or skin nodules). (a) T4a is extension to the chest wall. Adherence/invasion to the pectoralis muscle is NOT extension to the chest wall and is not categorized as T4. (b) T4b, illustrated here as satellite skin nodules, is defined as edema (including peau d’orange) of the skin, or ulceration of the skin of the breast, or satellite skin nodules confined to the same breast. These do not meet the criteria for inflammatory carcinoma. (c) T4b illustrated here as edema (including peau d’orange) of the skin. (d) T4c is defined as both T4a and T4b. T4d (not illustrated) is inflammatory cancer (see text for definition)
### Prognostic Staging: Molecular Subtypes

(PR+) = progesterone receptor positive  
(ER+) = estrogen receptor positive  
(ERBB2+) = erb-B2 receptor tyrosine kinase 2

<table>
<thead>
<tr>
<th>When TNM is...</th>
<th>And Grade is...</th>
<th>And HER2 Status is...</th>
<th>And ER Status is...</th>
<th>And PR Status is...</th>
<th>Then the Clinical Prognostic Stage Group is...</th>
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<td>T2 N1*** M0</td>
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<td>T3 N0 M0</td>
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</table>
Staging: Molecular Subtypes

ER Status:
- ER Positive: 74%
- ER Negative: 21%
- Unknown: 5%

PR Status:
- PR Positive: 64%
- PR Negative: 31%
- Unknown: 5%

HER2 Status:
- HER2 Positive: 51%
- HER2 Negative: 34%
- Unknown: 15%
Terms used in this discussion:

Non-invasive disease = Stage 0 = DCIS
Early invasive disease = Stages I-II
Locally advanced disease = Stage III
Metastatic disease = Stage IV
## 5-year Survival by Stage

<table>
<thead>
<tr>
<th>Breast Cancer Stage</th>
<th>5-Year Breast Cancer Specific Survival</th>
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</thead>
<tbody>
<tr>
<td>Stage 0</td>
<td>95–100%</td>
</tr>
<tr>
<td>Stage I</td>
<td>98–100%</td>
</tr>
<tr>
<td>Stage II</td>
<td>90–99%</td>
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<tr>
<td>Stage III</td>
<td>66–98%</td>
</tr>
<tr>
<td>Stage V</td>
<td>~27%</td>
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</tbody>
</table>
Summary of Key Points:

Staging and Classification

➢ DCIS, or Stage 0 breast cancer is non-invasive and confined to the ducts. It may progress to invasive disease.

➢ Both TNM criteria and molecular markers drive prognostic staging.
Surgical Management

➢ Lumpectomy vs. mastectomy

➢ Sentinel lymph node biopsy (SLNB) vs. axillary lymph node dissection (ALND)
Surgical Management: Lumpectomy vs. Mastectomy
Surgical Management: Lumpectomy vs. Mastectomy

➢ Lumpectomy should be offered if “clean” margins can be achieved with good cosmetic effect.

➢ In general, higher stage breast cancer may require greater surgical intervention.

➢ Some patients may choose mastectomy > lumpectomy for reasons of comfort or access to radiation therapy.
Surgical Management: SLNB vs. ALND

SLNB (above) involves the sampling of tissue from the first axillary nodes into which an injected tracer drains.

ALND involves the removal of more lymph nodes, usually level 1 and 2 (right), and adipose tissue from the axilla.
Surgical Management: SLNB vs. ALND

➢ SLNB is preferred for patients without clinical evidence of nodal disease and for those with early invasive breast cancer (usually fewer than 3 positive nodes) who plan to undergo lumpectomy.

➢ ALDN is reserved for those who have positive nodes on SLNB and will undergo mastectomy or those with large, multicentric, high-grade tumors.
Radiation therapy

1. External Beam Radiation
   - High intensity x-ray beamed from several angles

2. Brachytherapy (Internal Radiation Therapy)
   - Radiation delivered through catheters in the breast
Radiation Therapy

➢ Goal of radiation following surgery is to eliminate remaining, subclinical disease
➢ Recommended for those that undergo lumpectomy and for patients with high-risk, node-positive disease that has been treated with mastectomy.
➢ Partial breast irradiation requires fewer radiation session and decreases acute skin toxicity
Systemic Therapies

Preoperative/Postoperative

➢ Endocrine Therapy
➢ Chemotherapy
➢ Immunotherapy
Systemic Treatments: Endocrine Therapy

➢ Approximately ⅔ of breast cancer are hormone receptor positive (ER+, PR+) and are therefore amenable to treatment with endocrine therapies.
Systemic Treatments: Endocrine Therapy

➢ Tamoxifen, a SERM, binds competitively to estrogen receptors, preventing the downstream transcription of estrogen-related genes.

➢ Aromatase inhibitors inhibit the conversion of androgens to estrogens.
Systemic Treatments: Endocrine Therapy

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**Premenopausal at diagnosis:**

5 years Tamoxifen. 5 years AI only if high risk of recurrence.

Reevaluate:

If still premenopausal, Tamoxifen for another 5 years.

If now postmenopausal, Tamoxifen or AI for another 5 years.

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**Postmenopausal at diagnosis:**

10 years total of endocrine therapy. Can be Tamoxifen, AI or a sequence of the two medications.
Systemic Treatment: Immunotherapy

➢ Approximately 15–20% of breast cancers overexpress ERBB2 and are amenable to treatment with monoclonal antibodies directed against this protein.

➢ Trastuzumab is administered every 3 weeks for 1 year.

➢ High risk ERBB+ breast cancer may benefit from additional pertuzumab (MAB) or neratinib (oral TKI).
Systemic Treatment: Chemotherapy

➢ Also used to treat hormone receptor positive and ERBB2+ breast cancer, but INTEGRAL to the treatment of triple negative breast cancer.

➢ Taxane-based, non-anthracycline regimens are appropriate for lower risk disease.

➢ Anthracyclines are usually included in regimens that target cancer with lymph node involvement and triple negative breast cancer.
Invasive breast cancer is managed with a combination of surgical and systemic therapies:

- Lumpectomy/mastectomy
- Radiation
- Endocrine therapy
- Immunotherapy
- Chemotherapy
Primary Care of Breast Cancer Survivors
Ongoing Monitoring

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Physical Examination

➢ PE every 3–6 months for the first 3 years following remission.
➢ PE every 6–12 months for 2 additional years.
➢ PE annually thereafter.

Imaging

➢ Annual mammography of both breasts if patient has undergone lumpectomy or contralateral breast if mastectomy.
➢ MRI reserved for patients at high risk of recurrence (>20%), such as those with hereditary cancer syndromes.
Therapy Side Effects

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**Hot flashes/ Vaginal dryness**

- Low estrogen as a result of antiestrogen hormonal therapy or chemotherapy-induced ovarian failure can lead to hot flashes, vaginal dryness, dyspareunia, and urogenital atrophy.
- SSRIs, SNRIs, and gabapentin can all be used to treat hot flashes.
- pH balanced lubricants are recommended for dyspareunia.

**Cardiotoxicity**

- Overall risk of CV disease is higher in patients who receive hormonal therapies and anthracyclines.
- Consider TTE 6-12 months after treatment for patients who receive high-dose anthracyclines or Trastuzumab.
Therapy Side Effects

Decreased bone density

➢ Profound bone loss may occur with use of chemotherapeutic agents and ovarian suppression with AIs.
➢ DEXA should be obtained at baseline and every 2 years for patients at risk.
➢ Zoledronic acid and denosumab should be used to prevent bone loss in those receiving AIs.

Lymphedema

➢ More common for patients who receive ALND.
➢ Treatment can involve a combination of compression sleeves, massage therapy, and physical therapy.
Summary of Key Points:

Primary Care of Breast Cancer Survivors

The various therapies used to treat breast cancer have lasting effects for patients. Watch for:

- Hot flashes
- Vaginal dryness
- Cardiotoxicity
- Decreased bone density
- Lymphedema
Case #2 E.S.
Case #2: E.S.

E.S. is a 66y/o female with PMH HTN, HLD, osteopenia who has received a recent diagnosis of ER+ Stage II breast cancer. She is particularly anxious about starting treatment and asks you what she can expect. What are you able to tell her regarding her expected treatment course?
Questions?
Sources

Sources


Sources

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