Overview of Breast Cancer

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No Disclosures
OBJECTIVES

• Brief overview of breast cancer
• Discuss the diagnosis and treatment phases of breast cancer and decision making
• Discuss the rationale for neoadjuvant treatment and tumor biology
• Overview of some open trials
Normal Duct

Intraductal Hyperplasia

Atypical Ductal Hyperplasia

Ductal Carcinoma *In Situ*

Invasive Ductal Carcinoma

Predict and Prevent

Detect and Treat
### TNM System

<table>
<thead>
<tr>
<th>Tis</th>
<th>Carcinoma in situ</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2 cm or less</td>
</tr>
<tr>
<td>T2</td>
<td>&gt; 2 but ≤ 5 cm</td>
</tr>
<tr>
<td>T3</td>
<td>Greater than 5 cm</td>
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<tr>
<td>T4</td>
<td>Skin, chest wall involvement, or inflammatory</td>
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through Grades 2 and 3 with a worsening prognosis.
Remember, though, that a cell that appears poorly
differentiated does not necessarily function poorly.

STAGING OF CANCER

STAGE I
Disease is confined to the breast, with or without
dimpling of the skin.

STAGE II
The tumor is larger and the axillary nodes may be
affected. Surgery may cure, but some systemic treatment
is usually advised.

STAGE III
Cancer has invaded the muscles of the chest wall,
the overlying skin, or possibly the lymph nodes
above the collarbone.

STAGE IV
The cancer has spread to elsewhere in the body,
typically the bones, liver
or lungs.
biopsy
surgery
radiation
systemic therapy
what order??
Neoadjuvant treatment
http://www3.mdanderson.org/app/medcalc/index.cfm?pagename=jsconvert3
A011106

ALTernate approaches for clinical stage II or III Estrogen Receptor positive breast cancer NeoAdjuvant TrEatment (ALTERNATE) in postmenopausal women: A Phase III Study (A011106)
Inclusion Criteria

- ECOG performance status 0-2
- Postmenopausal women
- Clinical T2-T4c, any N, M0 invasive breast cancer
- ER+ with an Allred score of 6, 7 or 8 (ER% > 67%)
- HER2-
- Agree to required research biopsies at baseline, week 4 and at surgery

Exclusion Criteria

- Surgical axillary staging procedure prior to study entry.
  Note: FNA or core needle biopsy of axillary node is permitted.
- History of invasive breast cancer or contralateral DCIS.
ALTERNATE Schema

N= 1,740 - 2,820

BEFORE SURGERY

6 cycles (each cycle is 4 weeks)

Arm I
Arm II
Arm III

Neoadjuvant Chemotherapy Group
Chemotherapy (4-6 cycles)

Ki67 <10%

Ki67 >10%

Modified PEPI 0
Chemo NOT recommended

Modified PEPI > 0
Chemo recommended

Cycle 1 day 2 optional biopsy
(if receiving paclitaxel)

Tissue Collection
• Red: required
• Blue: optional

AFTER SURGERY

Arm I: Anastrozole (A)
Arm II: Fulvestrant (F)
Arm III: Anastrozole + Fulvestrant

Primary Endpoint:
• Modified PEPI 0 Rate
• 5-year RFS in patients with modified PEPI 0
A randomized phase III trial evaluating the role of axillary lymph node dissection in breast cancer patients (cT1-3 N1) who have positive sentinel lymph node disease after receiving neoadjuvant chemotherapy

Judy C. Boughey MD, Bruce G. Haffty MD, Thomas Buchholz MD, W. Fraser Symmans MD, Kelly K. Hunt MD, Jane Armer, PhD, RN, Janice Cormier, MD, Vera Suman PhD
Node Positive Neoadjuvant Patients

**ALLIANCE A11202 Schema**

- **Clinical T1-3 N1 M0 BC**
  - **Neoadjuvant Chemotherapy**
  - **BCT or Mastectomy**
    - **Sentinel Lymph Node Surgery**
      - **SLN Negative**
        - **Randomization**
          - ALND ⊕
            - Breast/chest wall and nodal XRT (no Axillary RT)
      - **SLN Positive**
        - No further axillary surgery. Breast/chest wall and nodal XRT (incl. Axilla)

**NSABP B-51/RTOG 1304 (NRG 9353) Schema**

- **Clinical T1-3 N1 M0 BC**
  - **Axillary nodal involvement (FNA or core needle biopsy)**
  - **Neoadjuvant chemo (+ Anti-HER-2 therapy for HER-2 neu ⊕ pts)**
  - **Definitive surgery with histologic documentation of negative axillary nodes (either by axillary dissection or by SLNB ± axillary dissection)**
    - **Stratification**
      - Type of surgery (mastectomy vs lumpectomy)
      - ER status (+ vs -), HER-2 status (+ vs -)
      - pCR in breast (yes vs no)
  - **Randomization**
    - No Regional Nodal XRT with breast XRT if BCS & No chest wall XRT if mastectomy
    - Regional Nodal XRT with breast XRT if BCS and chest wall XRT if mastectomy
Alliance A11104/ACRIN 6694

Effect of Preoperative Breast MRI on Surgical Outcomes, Costs and Quality of Life of Women with Breast Cancer
Eligibility criteria

- Women with
  - her-2 positive breast cancer (ER/PR negative) OR
  - Triple negative breast cancer
- Stage I-II, unilateral cancer
- No previous breast cancer history
- No preoperative chemotherapy
- No plans for partial breast irradiation following lumpectomy
- No BRCA carriers
Stage I-II patients eligible for BCT based on clinical exam/mammogram/US

Breast MRI

Based on MRI findings, not eligible for BCS
Mastectomy

Based on MRI findings, BCS can be attempted
Breast Conserving Surgery

Follow

No Breast MRI

Breast Conserving Surgery

Follow

Sample size: 244 patients/arm
Eligibility criteria

• Women with
  – her-2 positive breast cancer (ER/PR negative) OR
  – Triple negative breast cancer
• Stage I-II, unilateral cancer
• No previous breast cancer history
• No preoperative chemotherapy
• No plans for partial breast irradiation following lumpectomy
• No BRCA carriers
Randomized Phase III Trial Evaluating the Role of Weight Loss In Adjuvant Treatment of Overweight and Obese Women with Early Breast Cancer (Alliance 011401)

The Breast cancer WEight Loss (BWEL) Study

PI Jennifer Ligibel
Co-PI Pamela Goodwin
BWEL Study Schema

3136 participants
Key Eligibility:
• Stage II-III breast cancer
• HER-2 -
• BMI ≥ 27 kg/m2

2-year telephone-based weight loss intervention + Health education

Health Education Alone

Conducted through NCTN/NCORP

Activation date: August 29, 2016
Select Eligibility Criteria

• Breast cancer diagnosed within past 12 months

• Her-2 negative

• Stage II-III
  • Triple negative tumors: T2-T3, N0-3; any T, N1-3
  • ER+: any T, N1-3

• Completed with all chemotherapy and surgery (current radiation and hormonal, bisphosphonate, and biologic therapies okay)

• Life expectancy from other causes at least 5 years

• BMI ≥ 27 kg/m2

• Pre- or postmenopausal
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