NSABP Pivotal Breast Cancer Clinical Trials: Historical Perspective, Recent Results and Future Directions

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NSABP Breast Cancer Trials
Six Broad Research Themes

1. Optimizing local-regional management
2. Optimizing adjuvant hormonal therapy in early-stage BC
3. Identifying prognostic and predictive factors for outcome and response to therapy
NSABP Breast Cancer Trials
Six Broad Research Themes

4. Optimizing adjuvant chemotherapy in early-stage BC

5. Evaluating novel targeted therapies alone or in combination with standard adjuvant therapy

6. Evaluating neoadjuvant chemotherapy in order to individualize L-R therapy, outcome, and identify predictive markers of response
Optimizing Loco-Regional Management
Operable Breast Cancer

Clinically Node-Negative

Radical Mast.
Total Mast.
Total Mast. + XRT

Overall Survival

Global p=0.68

Patients | Deaths
---|---
RM: 362 | 259
TMR: 352 | 274
TM: 365 | 259

Fisher B: NEJM, 2002
NSABP B-06

Operable Breast Cancer

Clinical Tumor Size ≤ 4 cm

Total Mast. + Ax. Diss.

Lump. + Ax. Diss.

Lump. + Ax. Diss. + XRT

Overall Survival

Global p=0.57

Patients

Deaths

MAST 589 299
LUMP 634 338
LUMP/XRT 628 317

Fisher B: NEJM, 2002
### NSABP B-06

**Effect of XRT on IBTR (20-Years)**

<table>
<thead>
<tr>
<th></th>
<th>IBTR (%)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lump.</td>
<td>Lump. + XRT</td>
</tr>
<tr>
<td>All Patients</td>
<td>39%</td>
<td>14%</td>
</tr>
<tr>
<td>Node-Negative</td>
<td>36%</td>
<td>17%</td>
</tr>
<tr>
<td>Node-Positive*</td>
<td>44%</td>
<td>9%</td>
</tr>
</tbody>
</table>

*Received adjuvant chemotherapy

Fisher B: NEJM, 2002
Effect of Systemic Therapy on IBTR
Ten-Year Cumulative Incidence
NSABP Node-Negative Trials

Mamounas, SSO 2003
Tamoxifen and XRT for Occult Breast Cancer

NSABP B-21
Tumors \( \leq 1 \text{ cm} \)
Treated with Lumpectomy

<table>
<thead>
<tr>
<th>Group</th>
<th>IBTR 8-Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast XRT Placebo</td>
<td>9.3%</td>
</tr>
<tr>
<td>Breast XRT Tamoxifen</td>
<td>2.8%</td>
</tr>
<tr>
<td>Tamoxifen</td>
<td>16.5%</td>
</tr>
</tbody>
</table>

NSABP Trials in Patients with DCIS

**B-17:** Lumpectomy ± XRT

**B-24:** Lumpectomy + XRT
Placebo vs. TAM

**B-35:** Lumpectomy + XRT
TAM vs. Anastrozole

**B-43:** Lumpectomy + XRT
+ Trastuzumab
NSABP B-17 and B-24
12-Yr Cumulative Incidence of IBTR

NSABP B-17 and B-24
12-Yr Cumulative Incidence of IBTR

Invasive IBTR

Non-Invasive IBTR

NSABP B-24
Effect of Tamoxifen by ER-Status

ER-Positive

ER-Negative

Breast Cancer-Free Survival (%)

Time Since Surgery (years)

Placebo group (n = 274): 84 events
Tamoxifen group (n = 284): 58 events

10-year P < .001
Overall P = .003

Placebo group (n = 94): 25 events
Tamoxifen group (n = 80): 20 events

10-year P = .59
Overall P = .68

Allred et al: J Clin Oncol, 2012
Anastrozole vs. Tamoxifen for DCIS

- Postmenopausal Patients
- ER or PR Positive DCIS
- Lumpectomy with free margins

Randomization

XRT

Tamoxifen
Anastrozole

Activated: 1/03
Completed: 3106 pts

Primary endpoint: BC event
Secondary endpoints: DFS, OS, IBTR, CBC, fractures, QOL
NSABP B-43: Trastuzumab + XRT for HER-2 + DCIS

- **Radiation Therapy**
  - HER2+ DCIS Lx
  - Radiation Therapy + Trastuzumab
  - q3-week Trastuzumab cycles x 2

- **Hormonal Rx PRN**

- **Trastuzumab**
  - 8 mg/kg loading dose
  - 6 mg/kg final dose

Activated: 11/08
Accrual: 1492/2000 pts
NSABP B-32: Lymphatic Mapping and Sentinel Node Biopsy
Clinically Negative Axillary Nodes

Stratification
- Age
- Clinical Tumor Size
- Type of Surgery

Randomization

GROUP 1
Sentinel Node Biopsy
Axillary Dissection

GROUP 2
Sentinel Node Biopsy*

*Axillary node dissection only if the SN is positive

Accrual: 5611 (5/99-2/04)
NSABP B-32

Disease-Free Survival for SLN Negative Pts

Data as of Dec 31, 2012

Julian T et al: ASCO 2013
Overall Survival for SLN Negative Patients

<table>
<thead>
<tr>
<th>Trt</th>
<th>N</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNR+AD</td>
<td>1975</td>
<td>228</td>
</tr>
<tr>
<td>SNR</td>
<td>2011</td>
<td>252</td>
</tr>
</tbody>
</table>

HR=1.09  p=0.35

Data as of Dec 31, 2012

Julian T et al: ASCO 2013
NSABP B-32: Local and Regional Recurrences as First Events

- Local: 2.7%
- Axillary: 0.1% (SNR + ALND), 0.3% (SNR)
- Extra-axillary: 0.25% (SNR + ALND), 0.3% (SNR)

Krag D et al: Lancet Oncol 2010
NSABP B-32: Significantly Lower Morbidity Without vs. With ALND

- Shoulder Abduction Deficit: SNR + ALND (19) vs. SNR (13), P < .001
- Arm Volume Difference > 5%: SNR + ALND (28) vs. SNR (17), P < .001
- Arm Numbness: SNR + ALND (31) vs. SNR (8), P < .001
- Arm Tingling: SNR + ALND (13) vs. SNR (7), P < .001

Ashikaga T: J Surg Oncol 2010
Clinically Negative Axillary Nodes

Randomization

GROUP 1
Sentinel Node Biopsy
Axillary Dissection

GROUP 2
Sentinel Node Biopsy*

*Axillary node dissection only if the SN is positive

IHC and detailed pathologic examination of the SNs performed centrally and results were not disclosed

NSABP B-32: Occult Metastases

NSABP B-32: Effect of Occult Metastases on Survival in Node-Negative Breast Cancer

1608 Were negative for occult metastases
  316 Were positive for occult metastases

1660 Were negative for occult metastases
  300 Were positive for occult metastases

3268 Were negative for occult metastases
  616 Were positive for occult metastases
  430 Had isolated tumor-cell clusters
  172 Had micrometastases
  14 Had macrometastases

15.9%
NSABP B-32: Disease-Free Survival by Status of Occult Metastases

Data as of Dec 31, 2012

Occult Mets Absent: 3268 pts., 738 events
Occult Mets Present: 616 pts., 170 events

HR=1.25     Adjusted p=0.01

Julian T et al: ASCO 2013
NSABP B-32: Overall Survival by Status of Occult Metastases

Data as of Dec 31, 2012

HR = 1.26     Adjusted p = 0.06

3.0%

Occult Mets Absent  3268 pts., 378 deaths
Occult Mets Present 616 pts., 90 deaths

Julian T et al: ASCO 2013
NSABP B-32: Effect of Occult Metastases on the FNR of SNB

• Including the information from the additional pathologic assessment, the FNR of SLNB in B-32 was reduced to from 9.7% to **6.4%** (49 of 763 cases)

• This 35% reduction in FNR was statistically significant (**p< 0.001**)  

• This approach would have resulted in an additional **16%** of patients undergoing completion axillary dissection
NSABP B-39/RTOG 0413
Accelerated Partial Breast Irradiation vs. Whole Breast XRT

Operable Breast Cancer Treated with Lumpectomy

External Beam Whole Breast XRT
Partial Breast XRT

Accrual: 4211 (3/04-3/13)

Primary endpoint: IBTR rates between whole breast XRT and PBI
Optimizing Adjuvant Hormonal Therapy in Early-Stage BC
NSABP ER-Positive Trials

B-14:
Plac. vs TAM

B-20:
TAM vs MFT/CMFT

B-33:
TAM --> AI vs PLAC

B-42:
AI --> LET vs PLAC
NSABP Node (-), ER (+) Studies

Results

**B-14**

- **RFS**
  - 78%
  - 65%
  - HR: 0.58 (95% CI: 0.50-0.67)

- **OS**
  - 71%
  - 65%
  - HR: 0.80 (95% CI: 0.71-0.91)

**B-20**

- **RFS**
  - 89%
  - 79%
  - HR: 0.52 (95% CI: 0.39-0.68)

- **OS**
  - 87%
  - 83%
  - HR: 0.78 (95% CI: 0.60-1.01)

More Than Half of Breast Cancer Recurrences and Deaths Occur Post-Tamoxifen

NSABP B-33 Trial

Stage I-II Breast Cancer
Postmenopausal, ER or PgR-Positive

Tamoxifen for 5 Years
Disease-Free

Randomization

Exemestane
X 5 years

Placebo
X 5 years

Opened: May 1, 2001
Target Accrual: 3000 pts
Accrual in 10/03: 1598 pts

Accrual stopped in 10/03 after disclosure of results from the NCIC MA.17 trial and the study was unblinded

B-33: Relapse-Free Survival*

% Event-Free

RR = 0.44    p = 0.004

Group          N   Events
Placebo        779  37
Exemestane     783  17

*Eligible pts with follow-up

NSABP B-42: Trial Evaluating Adjuvant AI Duration

Postmenopausal, Disease-free, Stage I, II, or III invasive BC at diagnosis
ER-positive and/or PgR-positive

- Primary Endpoint
  Disease-free survival
- Secondary Endpoints
  Overall survival
  Time to treatment failure
  Osteoporosis-related fractures

Accrual: 3966 pts
Identifying Prognostic and Predictive Factors for Outcome and Response to Therapy
21-Gene Recurrence Score Validation Study

16 Cancer and 5 Reference Genes

ESTROGEN
- ER
- PR
- Bcl2
- SCUBE2

PROLIFERATION
- Ki-67
- STK15
- Survivin
- Cyclin B1
- MYBL2

INVASION
- Stromolysin 3
- Cathepsin L2

HER2
- GRB7
- HER2

CD68

5 REFERENCE GENES
- BAG1
- SCUBE2
- Survivin
- Cyclin B1
- MYBL2

NSABP B-14
668 Node (-), ER (+) Pts

P<0.00001

NSABP B-20: Chemotherapy Benefit by Recurrence Score Category

**Low Risk (RS < 18)**
- Tam + Chemo
- Tam

p = 0.76

**Interm. Risk (RS 18–30)**
- Tam + Chemo
- Tam

p = 0.71

**High Risk (RS ≥ 31)**
- Tam + Chemo
- Tam

p = 0.001

RS and Loco-Regional Failure

TAM-Treated Patients (B-14/B-20, n=895)

Rate of LRF %

- RS < 18
- RS 18-30
- RS ≥31

P<0.0001

Time in Years

Optimizing Adjuvant Chemotherapy in Early-Stage BC
NSABP: Node-Negative, ER-Negative Protocols

B-13: Surg. vs MF

B-19: MF vs CMF

B-23: CMF vs AC +/- TAM

B-36*: AC vs FEC +/- CEL

*ER- / ER+
NSABP Node (-), ER (-) Studies
Results
NSABP Node-Positive Trials
Evaluating Adjuvant Taxanes

**B-28:**
AC vs. AC → T

**B-30:**
AC → T vs. AT X 4 vs. TAC X 4

**B-38:**
TAC X 6 vs. dd AC → T vs. dd AC → TG

n=3059
n=5351
n=4800
NSABP B-28: Effect of RS on Outcomes

### DFS
- RS Low
- RS Intermediate
- RS High

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Events</th>
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<tbody>
<tr>
<td>RS Low</td>
<td>386</td>
<td>109</td>
</tr>
<tr>
<td>RS Intermediate</td>
<td>364</td>
<td>162</td>
</tr>
<tr>
<td>RS High</td>
<td>315</td>
<td>168</td>
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</table>

P-value < .001

### DRFI
- RS Low
- RS Intermediate
- RS High

<table>
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<th>Events</th>
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<td>85</td>
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<tr>
<td>RS Intermediate</td>
<td>364</td>
<td>134</td>
</tr>
<tr>
<td>RS High</td>
<td>315</td>
<td>140</td>
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</table>

P-value < .001

### OS
- RS Low
- RS Intermediate
- RS High

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Events</th>
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</thead>
<tbody>
<tr>
<td>RS Low</td>
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<td>48</td>
</tr>
<tr>
<td>RS Intermediate</td>
<td>364</td>
<td>105</td>
</tr>
<tr>
<td>RS High</td>
<td>315</td>
<td>121</td>
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</tbody>
</table>

P-value < .001

### BCSS
- RS Low
- RS Intermediate
- RS High

<table>
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<tr>
<th></th>
<th>N</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS Low</td>
<td>386</td>
<td>28</td>
</tr>
<tr>
<td>RS Intermediate</td>
<td>364</td>
<td>87</td>
</tr>
<tr>
<td>RS High</td>
<td>315</td>
<td>102</td>
</tr>
</tbody>
</table>

P-value < .001
RS in B-28: Effect of RS on LRR

P-value < .001

RS Low: 12.3%
RS Intermediate: 7.2%
RS High: 3.3%

Mamounas et al: SSO 2013
NSABP B-37/IBCSG : CALOR Trial
Evaluation of Adjuvant Chemotherapy for LRR

**Strata**
- Prior Chemo-Tx
- ER+ and/or PR+
- Location ILRR

**Chemotherapy**
- No chemotherapy
- + Endocrine therapy for ER+ and/or PR+
- + HER2-directed therapy (optional)

**Chemotherapy chosen by investigators**
Recommendation: ≥ 2 drugs, 3 to 6 mos of therapy

**Primary Endpoint:** DFS
**2° Endpoint:** OS
**All analyses:** ITT

Aebi S. et al: SABCS 2012
CALOR Trial – DFS and OS

Number at Risk

<table>
<thead>
<tr>
<th></th>
<th>Pts</th>
<th>Events</th>
<th>HR</th>
<th>95% CI</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemotherapy</td>
<td>85</td>
<td>24</td>
<td>0.59</td>
<td>0.35-0.99</td>
<td>0.0455</td>
</tr>
<tr>
<td>No Chemotherapy</td>
<td>77</td>
<td>34</td>
<td></td>
<td></td>
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</table>

Number at Risk

<table>
<thead>
<tr>
<th></th>
<th>Pts</th>
<th>Deaths</th>
<th>HR</th>
<th>95% CI</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemotherapy</td>
<td>85</td>
<td>9</td>
<td>0.41</td>
<td>0.19-0.89</td>
<td>0.02</td>
</tr>
<tr>
<td>No Chemotherapy</td>
<td>77</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CALOR Trial: DFS and OS by ER Status

Univariate Interaction term: Treatment x ER: $P = 0.044$

DFS

OS

Aebi S. et al: SABCS 2012
Evaluating Novel Targeted Therapies Alone or in Combination with Standard Adjuvant Therapy
NSABP B-31
Operable Breast Cancer
HER-2 neu Positive
Path Node-Positive
Randomization
AC x 4
Paclitaxel x 4
Paclitaxel x 4 + Trastuzumab X 1 year
TAM X 5 years for ER+ or PgR+, Optional for ≥ 50 yrs. With ER– and PgR–
Opened: 2/00

NCCTG 9831
HER 2/Neu Positive
NP/High-Risk NN
Paclitaxel weekly X 12
Trastuzumab weekly X 52
AC x 4
Opened: 5/00

U.S. Adjuvant Trastuzumab Trials
B-31/N9831: Disease-Free Survival

AC → P

AC → P+H

AC → P

AC → P+H

N  Events

2018  680

2028  473

73.7%

11.5%

HR_{adj} = 0.60 (95% CI: 0.53-0.68)

P < 0.0001

Romond et al: SABCS 2012
B-31/N9831 Overall Survival

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC → P</td>
<td>2018</td>
<td>418</td>
</tr>
<tr>
<td>AC → P+H</td>
<td>2028</td>
<td>286</td>
</tr>
</tbody>
</table>

Survival rates:
- AC → P: 84.0% ± 8.8%
- AC → P+H: 75.2% ± 8.8%

HR_{adj} = 0.63 (95% CI 0.54-0.73)

P < 0.0001

Romond et al: SABCS 2012
Effect of Trastuzumab According to HER-2 Status by Central IHC and FISH

Randomize Stratification
Age, # nodes, ER/PR Status, Adj. Chemo

Node-Positive or High-Risk Node-Negative IBC HER2-Normal (n=3260)

Accrual: 2051/3260

TC(6) or AC(4) → T(4)

TC(6) + H or AC(4) → T(4) + H

+ Hormonal Therapy for ER or PR positive
Evaluating Neoadjuvant Chemotherapy in Order to Individualize L-R Therapy, Outcome, and Identify Predictive Markers of Response
NSABP Neoadjuvant Trials

B-18: Adj. vs. Neoadj. AC

B-27: Neoadj. AC vs. AC→T

B-40/B-41: Neoadj. Chemo +/- Biologics
B-18: 16-Year Update

**DFS**

- **HR = 0.99**  \( P = .90 \)

**OS**

- **HR = 0.93**  \( P = .27 \)

---

**DFS**

- Trt: Post-Op AC, Pre-Op AC
- N: 751, 742
- Deaths: 315, 310

**OS**

- Trt: Post-Op AC, Pre-Op AC
- N: 751, 742
- Events: 434, 410

---

B-18: Overall Survival by Age

<50yrs

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Ev</th>
<th>HR</th>
<th>P</th>
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<tbody>
<tr>
<td>Post</td>
<td>388</td>
<td>167</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>381</td>
<td>139</td>
<td>.81</td>
<td>0.06</td>
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</table>

≥50yrs

<table>
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<th>Ev</th>
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<th>P</th>
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</thead>
<tbody>
<tr>
<td>Post</td>
<td>363</td>
<td>148</td>
<td>1.23</td>
<td>0.07</td>
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<tr>
<td>Pre</td>
<td>361</td>
<td>171</td>
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</table>

Qualitative Treatment by Age Interaction

p=0.01

NSABP B-27 Schema

Operable Breast Cancer
(2411 pts)

Randomization

AC x 4
Tam X 5 Yrs
Surgery
pCR: 13.7%

AC x 4
Tam X 5 Yrs
Docetaxel x 4
Surgery
pCR: 25.6%

AC x 4
Tam X 5 Yrs
Surgery

AC x 4
Tam X 5 Yrs
Docetaxel x 4
B-27: 8-Year Update

**DFS**

**RFS**

**OS**

<table>
<thead>
<tr>
<th>Trt</th>
<th>N</th>
<th>Events</th>
</tr>
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<tbody>
<tr>
<td>Pre-Op AC</td>
<td>784</td>
<td>304</td>
</tr>
<tr>
<td>Pre-Op ACT</td>
<td>783</td>
<td>292</td>
</tr>
<tr>
<td>Pre-Op AC + Post Op T</td>
<td>777</td>
<td>286</td>
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</table>

<table>
<thead>
<tr>
<th>Trt</th>
<th>N</th>
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<tbody>
<tr>
<td>Pre-Op AC</td>
<td>784</td>
<td>254</td>
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<tr>
<td>Pre-Op ACT</td>
<td>783</td>
<td>220</td>
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<tr>
<td>Pre-Op AC + Post Op T</td>
<td>777</td>
<td>227</td>
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<tr>
<th>Trt</th>
<th>N</th>
<th>Deaths</th>
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<tr>
<td>Pre-Op AC</td>
<td>784</td>
<td>192</td>
</tr>
<tr>
<td>Pre-Op ACT</td>
<td>783</td>
<td>182</td>
</tr>
<tr>
<td>Pre-Op AC + Post Op T</td>
<td>777</td>
<td>189</td>
</tr>
</tbody>
</table>

HR = 0.93, 0.92  P = .29, .29

HR = 0.83, 0.87  P = .04, .14

HR = 0.93, 0.97  P = .46, .76

Effect of pCR on Overall Survival

NSABP B-18

NSABP B-27

SNB After NC  
Multi-Center Studies: NSABP B-27  
(n=428)

- Identification Rate: 85%
  - With blue dye: 78%
  - With isotope + blue dye: 88-89%
- False Negative Rate: 11%
  - With blue dye: 14%
  - With isotope + blue dye: 8.4%

Clinically Node (-): 12.4%  
Clinically Node (+): 7.0%  
P=0.51

Mamounas EP: J Clin Oncol, 2005
# Combined Analysis of B-18/B-27 Independent Predictors of LRF

<table>
<thead>
<tr>
<th>Lumpectomy + XRT (1890 Pts, 190 Events)</th>
<th>Mastectomy (1070 Pts, 128 Events)</th>
</tr>
</thead>
</table>
| **Age**  
(≥50 years vs. <50 years) | **Clinical Tumor Size**  
(>5 cm vs. ≤5 cm) |
| **Clinical Nodal Status**  
(+) vs. (-) | **Clinical Nodal Status**  
(+) vs. (-) |
| **Breast/Nodal Path Status**  
Node(-)/No pCR vs. Node(-)/pCR  
Node(+) vs. Node(-) /pCR | **Breast/Nodal Path Status**  
Node(-)/No pCR vs. Node(-)/pCR  
Node(+) vs. Node(-) /pCR |

NRG 9353: Schema

Clinical T1-3N1M0 BC

Axillary Node (+) (FNA or Core Needle Biopsy)

Neoadjuvant Chemo (+ Anti-HER-2 Therapy for HER-2 neu + Pts)

Path Negative Axillary Nodes at Surgery (Axillary Dissection or SNB ± Axillary Dissection)

Randomization

No Regional Nodal XRT with Breast XRT if BCS and No Chest Wall XRT if Mastectomy

Regional Nodal XRT with Breast XRT if BCS and Chest Wall XRT if Mastectomy
NSABP
New Directions with Neoadjuvant Chemotherapy

• Use pCR as a correlate of chemotherapy efficacy to test new drugs and regimens

• Utilize micro-array technology to identify genomic profiles associated with pCR to specific drugs or combinations

• Candidates:
  • Sequential anthracycline/taxane combinations
  • New targeted therapies alone or in combination with chemo
Operable Breast Cancer

Endpoints: pCR, cCR, DFS, OS, gene expression patterns

Accrual: 1205 pts
NSABP B-40: Effect of Bevacizumab on pCR


- W/O BEV: 28.4% (N=592)
- BEV: 34.5% (N=588)
NSABP B-40: Effect of Bevacizumab on pCR by Hormone-Receptor Status

<table>
<thead>
<tr>
<th>Status</th>
<th>OR (W/O BEV)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR+</td>
<td>1.70</td>
<td>0.008</td>
</tr>
<tr>
<td>TNBC</td>
<td>1.17</td>
<td>0.44</td>
</tr>
</tbody>
</table>

Interaction p value = 0.166

NSABP B-41: Neoadjuvant Study with Lapatinib vs. Trastuzumab vs. Combo

Operable Breast Cancer HER-2 neu Positive

Endpoints: pCR, cardiac events, DFS, OS

Tissue for Biomarkers

AC → TH

AC → TL

AC → THL

Trastuzumab for a total of 1 year

Accrual: 529 pts
NSABP B-41: pCR Breast and Negative Nodes

- AC→WP+T (N=176): 49.4%
- AC→WP+L (N=171): 47.4%
- AC→WP+T+L (N=171): 60.2%

P-values:
- P=0.056
- P=0.78

Percentage (%)
Several of the pivotal NSABP breast cancer clinical trials have been instrumental in establishing/changing the standard of care for patients with early stage breast cancer:

- Loco-regional management
- Adjuvant hormonal therapy
- Adjuvant chemotherapy
- Adjuvant targeted therapy with biologics
- Neoadjuvant chemotherapy