Bringing the Fight to Cancer.

2016 Annual Report

Baylor Scott & White Medical Center
Mckinney
Quality Study
Adherence To Adjuvant Systemic Therapy Following Primary Surgery in Stage II Breast Cancer Patients: Baylor Scott & White Medical Center – McKinney 2012-2014
Data Reviewed by Lynn Canavan, MD, Chairman Cancer Committee

Introduction
The American Cancer Society estimates that approximately one in eight women in the United States will develop invasive breast cancer during their lifetime with about 240,000 new cases of invasive breast cancer being diagnosed in 20161. In addition to high incidence rates, breast cancer is the second leading cause of cancer death in women. Death rates from breast cancer have decreased since 1989 resulting in more than 2.8 million women in the United States who are breast cancer survivors. Improvements in survival rates are attributed to advancements in detection and treatment1,2.

Early stage breast cancer (stages I or II) is the most common invasive breast cancer in the United States. Stage II breast cancers are larger than stage I cancers and/or have spread to nearby lymph nodes. Stage II is divided into two categories: stage IIA and stage IIB. The difference than stage I cancers and/or have spread to nearby lymph nodes. Stage II is divided into two categories: stage IIA and stage IIB. The difference in survival between stage I cancers and stage II cancers is due to the lack of treatment information documented in the medical record. The lack of treatment information may be due to the nature of the tumor or radiation therapy type.

Several published results from the Early Breast Cancer Trialists Collaborative Group (EBCTCG) demonstrate the benefit of adjuvant systemic therapy in reducing cancer recurrence following primary surgery. In a meta-analysis, results show that adjuvant chemotherapy and tamoxifen demonstrated strong reductions in the odds of both cancer recurrence and death in all age groups and hormone receptor status (ER/PR) and HER2 amplification following primary surgery. The purpose of the following analysis is to evaluate treatment patterns based on hormone receptor status (ER/PR) and HER2 amplification following primary surgery in stage II breast cancer patients treated at Baylor Scott & White Medical Center – McKinney, from 2012-2014.

Methods
Using the Baylor Scott & White Health North Texas Cancer Registry, all breast cancer cases in stage II receiving primary surgery at Baylor Scott & White – McKinney from 2012-2014 were compared to the evaluation and treatment guidelines published by the NCCN. Stage II patients were identified using the Pathology AJCC stage code and filtered by histology codes (85003, 85023). The use of chemotherapy and endocrine therapy is recommended.

In addition, a meta-analysis by the EBCTCG demonstrated a reduction in 10-year risk of recurrence in those who received whole breast irradiation versus those who did not following lumpectomy3. The results of EBCTCG meta-analysis showed that radiation therapy and adjuvant systemic therapy following mastectomy reduced both recurrence and breast cancer mortality in women with one to three positive lymph nodes. Lastly, patients with invasive breast cancers that are hormone receptor positive should be considered for adjuvant endocrine therapy regardless of patient age, lymph node status, or whether chemotherapy was recommended.

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The majority of mastectomy patients with ER Positive and/or PR Positive status received adjuvant chemotherapy and/or hormone therapy. Mastectomy patients with ER Positive and/or PR Negative status did not receive adjuvant chemotherapy or surgery following treatment.

Of those receiving mastectomies:
- 18 (85.71 percent) were ER Positive and/or PR Positive tumors.
- Three (14.28 percent) were ER Negative and/or PR Negative tumors.

The majority of mastectomy patients with ER Positive and/or PR Positive status received adjuvant chemotherapy and/or hormone therapy. Mastectomy patients with ER Positive and/or PR Negative status did not receive adjuvant chemotherapy or surgery following treatment.

The decision to use systemic adjuvant therapy requires collaboration between the health care team and patient in determining the balance between risk of recurrence and the benefits from therapy.

During the calendar years of 2012, 2013 and 2014, Baylor Scott & White – McKinney encountered 41 primary surgeries of which 20 were lumpectomies and 21 were mastectomies. In those patients receiving primary surgery, 58.29 percent were 51 years of age or above and 41.71 percent were below 50 years of age. Divided by AJCC stage code and primary surgery type by AJCC stage code. In addition, a meta-analysis by the EBCTCG demonstrated a reduction in 10-year risk of recurrence in those who received whole breast irradiation versus those who did not following lumpectomy3. The results of EBCTCG meta-analysis showed that radiation therapy and adjuvant systemic therapy following mastectomy reduced both recurrence and breast cancer mortality in women with one to three positive lymph nodes. Lastly, patients with invasive breast cancers that are hormone receptor positive should be considered for adjuvant endocrine therapy regardless of patient age, lymph node status, or whether chemotherapy was recommended.

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According to the NCCN guidelines, radiation therapy is recommended for lumpectomy. Use of the 20 patients receiving radiation therapy at Baylor Scott & White – McKinney received radiation therapy following surgery. Of the 20 patients without documentation of radiation therapy, the two patients were greater than 71 years of age and received primary surgery, followed by adjuvant systemic therapy. The majority of patients received chemotherapy. The guidelines also strongly recommend that mastectomy patients receive radiation therapy following surgery. A total of 23.5 percent of the mastectomy patients at Baylor Scott & White – McKinney received radiation therapy following surgery. This finding may be due to the nature of the tumor or radiation therapy was given prior to surgery in addition to lack of treatment information documented in the Cancer Registry for the years of 2012-2014.
ER Positive and PR Positive or Negative Status with HER2 Positive Expression

Of all stage II breast cancer patients treated at Baylor Scott & White – McKinney, six patients presented with ER Positive and PR Positive or Negative Status with HER2 expression. Three patients received a lumpectomy and three received a mastectomy. The lumpectomy patients received radiation and chemotherapy in addition to surgery while the mastectomy patients received chemotherapy in addition to surgery. The NCCN guidelines recommend that patients with ER Positive and PR Positive or Negative Status with HER2 Positive expression receive adjuvant chemotherapy after endocrine therapy. All patients received chemotherapy with three documented as receiving endocrine therapy.

ER Negative and PR Negative Status with Positive or Negative HER2 Expression

Of all stage II breast cancer patients treated at Baylor Scott & White – McKinney, seven patients presented with ER Negative and PR Negative tumor status with Positive or Negative HER2 expression. Four patients received a lumpectomy and three patients received a mastectomy. All lumpectomy patients received radiation and chemotherapy in addition to surgery. Two of the three lumpectomy patients had a mastectomy and three patients received a mastectomy. The lumpectomy patients with Positive or Negative HER2 expression received chemotherapy in addition to surgery. The NCCN guidelines recommend that patients with ER Negative and PR Negative tumor status with HER2 Positive expression receive adjuvant chemotherapy after endocrine therapy. All patients received chemotherapy with three documented as receiving endocrine therapy.

Discussion

The first course of treatment for stage II breast cancer is primary surgery either lumpectomy or mastectomy. Women treated with lumpectomy are treated with radiation therapy following surgery while women who have a mastectomy are typically treated with radiation if the cancer spreads to the lymph nodes. Systemic adjuvant therapy is recommended for women with stage II breast cancer. Systemic treatment can occur before or after surgery takes place. In some cases, systemic therapy will be started before surgery and continue following surgery.

Several studies published by the EBCTCG provide the framework for determining the decision to use systemic adjuvant therapy after surgical treatment. The decision to use systemic adjuvant therapy requires the consideration of various factors including the risk for disease recurrence and the benefit from applying adjuvant therapy. Importantly, the decision making process requires the collaboration between the health care team and the patient.

The analysis demonstrates that Baylor Scott & White – McKinney is in accordance with the examined NCCN guidelines for treatment following primary surgery in stage II breast cancer patients. A few cases did not meet recommended guidelines but this is likely due to the nature of the tumor and/or patient educated treatment decision.

References

Cancer Screenings
Baylor Scott & White Medical Center – McKinney 2016

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<tr>
<th>SCREENING TYPE</th>
<th>NUMBER OF 2016 SCREENINGS</th>
<th>NUMBER AT RISK</th>
<th>CANCER DIAGNOSIS OR ABNORMALITY</th>
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<td>Breast</td>
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<td>Colon</td>
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<td>Low-Dose CT Lung</td>
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Frequency of Treatment Based on ER+ and PR+/- and HER2+
Baylor Scott & White Medical Center – McKinney 2012-2014

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Frequency of Treatment Based on ER- and PR- and HER2+/
Baylor Scott & White Medical Center – McKinney 2012-2014

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<td>Total</td>
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Treatment Type Following Lumpectomy Based on ER/PR Status
Baylor Scott & White Medical Center – McKinney 2012-2014

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<tbody>
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Treatment Type Following Mastectomy Based on ER/PR Status
Baylor Scott & White Medical Center – McKinney 2012-2014

<table>
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Breast Cancer

- **Cancer Registry Improvement - Released Spring 2015**
  - For patients under the age of 80 receiving resection for rectal cancer (Quality Improvement - Released Fall 2008)

**LCT:** Systemic chemotherapy is considered or administered within 6 months to the day post-diagnosis in patients with pathologic node positive (pN1) or (pN2) NSCLC

**G15RLN:** At least 15 regional lymph nodes are removed and pathologically examined for resected ovarian cancer (Surveillance Measure - Released Fall 2014)

**OVSAL:** Ovary endometrial cancer (Surveillance Measure - Released Fall 2015)

**ENDLRC:** Radiation therapy is not first course of treatment for cN2, M0 cases (Quality Improvement)

**ENDO:** Endocrine, laparoscopic, or robotic performed for all endometrial cancer (excluding sarcoids and synapheomas), for all stages except Stage IV (Surveillance Measure - Released Fall 2015)

**ENDOCR:** Chemotherapy and/or radiation administered to patients with Stage I-III or IV endometrial cancer (Surveillance Measure - Released Fall 2015)

**Q-OMAL:** Optimal chemotherapy administered to cervical cancer patients who received radiation for stages IB1-IVC on or with positive pelvic nodes, positive surgical margins, and/or positive peritoneum (Group 2) (Surveillance Measure - Released Spring 2015)

**CERRT:** Radiation therapy completed within 60 days of initiation of radiation among women diagnosed with any stage of cervical cancer (Surveillance Measure - Released Spring 2015)

**C2BRT:** Cervix brachytherapy or administered within 4 months to the day pre-operatively or day of surgery to 6 months postoperatively or surgically resected cases with pathologic evidence of cancer (Surveillance Measure - Released Spring 2015)

**RLRTC:** Pelvic radiation therapy is administered within 1 year (365 days) of diagnosis for women with AJCC T1cNoMo, or Stage II or III cervical cancer (Surveillance Measure - Released Spring 2015)

**CERR:** Chemotherapy administered to cervical cancer patients who received radiation for stages IB1-IVC on or with positive pelvic nodes, positive surgical margins, and/or positive peritoneum (Group 2) (Surveillance Measure - Released Spring 2015)

**DUROC:** Adjuvant chemotherapy administered to resected gastric cancer (Quality Improvement - Released Fall 2014)

**C2BRT:** Cervix brachytherapy is considered or administered within 4 months to the day pre-operatively or day of surgery to 6 months postoperatively or surgically resected cases with pathologic evidence of cancer (Surveillance Measure - Released Spring 2015)

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