St. Joseph Cancer Center Use of Tumor Markers in Early Stage Breast Cancer

**Background:**

The American Board of Internal Medicine (ABIM) developed the Choosing Wisely campaign to reduce waste in healthcare spending by helping patients and physicians choose care that supported by evidence, not duplicative of other tests or procedures already received, free from harm and truly necessary. ABIM partnered with professional societies to develop lists of “five things physicians and patients should question”. The American Society of Clinical Oncology (ASCO) originally proposed five Choosing Wisely initiatives which included two that focused on early diagnosis and follow up of breast cancer. These two initiatives were:

1. Do not use PET, CT and radionuclide bone scans in early stage asymptomatic breast cancer
2. Do not use biomarkers (CEA, CA 15-3, and CA 27-29) or advanced imaging tests (PET, CT, Bone Scan) to monitor for recurrence in non-metastatic breast cancer.

In 2013, the St. Joseph Cancer Center examined its compliance with these guidelines in breast cancer and found that overall compliance with avoidance of imaging in early stage breast cancer was 81.7%. Compliance for avoidance of tumor marker use in non-metastatic breast cancer was 61%. Furthermore, tumor marker use was highly variable between physicians with use rates from 0% to 75%. The Cancer Committee identified an opportunity to improve upon compliance with Choosing Wisely recommendations regarding use of tumor markers in non-metastatic breast cancer.

**Initial Study:**

Baseline use of tumor markers in early stage breast cancer was assessed by examining the first six months of 2013 Registry data from all patients diagnosed with stage 0-3 breast cancer. Chart reviews of each patient were performed to determine if tumor markers were ordered, which provider ordered the tests and whether there was an indication to do so (for example, patient had developed metastatic disease). Next, educational interventions were undertaken to inform the medical staff of St. Joseph Medical Center regarding the guidelines on tumor marker use. Educational material was presented at Cancer Committee, Tumor Boards, and at a CME Seminar on 9/11/13. Following the educational interventions, the use of tumor markers in non-metastatic breast cancer was evaluated using data from the last six months of 2013 Registry data on women diagnosed with stage 0-3 breast cancer. Results at that time showed reduced tumor marker use by only one physician, from 75% to 12%. We concluded that intervention with education could be useful but that perhaps not enough time had passed since the intervention to see a shift in the practice patterns of ordering providers.
Follow-Up Study Design:

The follow up study examined use of tumor markers in non-metastatic breast cancer patients in 2015, which allowed additional time from the initiation of educational interventions on guideline-based use of tumor markers in breast cancer. Patients diagnosed with stage 0-3 breast cancer were identified from St. Joseph Registry data from 2014. Chart reviews of each patient were performed to determine if tumor markers were ordered, which provider ordered the tests and whether there was an indication to do so (for example, patient had developed metastatic disease). Use of tumor markers was reported by physician using blinded identification. Results from pre-intervention, initial post-intervention and 2014 follow up were compared.

Results:

The results are tabulated in the chart on page 3. The use of tumors markers for monitoring patients with non-metastatic breast cancer decreased after intervention with education regarding Choosing Wisely initiatives and professional guidelines. Prior to intervention in 2013, the overall use of tumor markers in breast cancer was 39%. Following educational intervention, the use decreased to 18% in 2014. There was still significant variation in use of tumor markers between physicians but there was improved compliance with guidelines. For the three highest utilizers of tumor markers in non-metastatic breast cancer during the pre-intervention period, use decreased for all three in 2014. These providers participate in General Tumor Board and/or Breast Tumor Board and have been exposed to educational discussions regarding guidelines on tumor marker use. One provider had increased use of tumor markers from the pre-intervention period to 2014. This provider does not regularly participate in tumor boards and did not attend the CME seminar; thus, this provider did not receive educational material through provided in these venues. For the remainder of the providers, use remained very low (0-4.5%). Two of these providers had historically not used tumor markers but had ordered tumor markers in only one patient each in 2014. Extenuating circumstances could not be determined by chart review but given the providers’ historic ordering patterns and the fact that they regularly participate in tumor boards and seem educated in appropriate use of tumor markers, these two outliers may have been order errors and not intentional.

Interestingly, the Hutchison Institute for Clinical Outcomes Research (HICOR) is collecting similar data from 13 Registries in Western Washington State and has found high variability in the use of tumor markers in early stage breast cancer. The regional average use is 42% which is very similar to the 39% use at St. Joseph seen at baseline. HICOR has convened a Value in Cancer Care working group to assess reasons for noncompliance with guidelines and make recommendations regarding interventions to improve compliance. One such intervention being considered is education of physicians in a manner similar to the efforts at St. Joseph.
Conclusion:

Overall, at St. Joseph Medical Center, there has been improvement in compliance with the Choosing Wisely initiative to avoid using tumor markers in women with non-metastatic breast cancer. There is still room for improvement and efforts going forward should focus on distributing performance/compliance data to individual physicians to benchmark their performance against the guidelines and against their peers. In addition, education to physicians who do not regularly attend tumor boards is needed and might be accomplished by providing educational materials included with the individual performance data that is distributed.