Background

The principles of breast conserving therapy include both surgical excision and radiation treatment to achieve adequate local control in early stage breast cancer. After surgical margin recommendations were published by the 2014 SSO-ASTRO guidelines for invasive breast cancer, the majority of subsequent data revealed decreases in surgical re-excision practices at many institutions. In addition to surgical excision, the use of whole breast irradiation has been shown to improve local control and survival. An additional radiation boost to the surgical cavity can also be administered to patients with various risk factors for recurrence. There is limited data that reviews concurrent re-excision and radiation practices following the new surgical guidelines. The purpose of our study was to review our institution’s surgical re-excision and simultaneous radiation practices in patients receiving radiation boost before and after publication of the 2014 SSO-ASTRO guidelines for invasive breast cancer.

Methods

A retrospective review from Nov 2012- June 2015 identified 100 early stage (I-II) breast cancer patients, who underwent breast conserving surgery (BCS) and adjuvant hypo-fractionated whole breast irradiation plus boost. Patients who had multi-focal disease, neoadjuvant chemotherapy, or incomplete operative or pathologic reports were excluded. Tumor size, presence of high risk features (e.g., lympho-vascular invasion [LVI], extensive intraductal component [EIC]), hormonal receptor status, presence of Her2 neu protein, pathologic stage, final margin status <2 mm, and number of surgical re-excisions were recorded. Boost indications, including: young age, triple negative disease, LVI, EIC, positive axillary lymph nodes, and <2mm margins were identified. Patients were divided into pre- and post- 2014 SSO guideline groups. Relationships between clinical data were evaluated using unpaired T-tests.

Results

A total of 100 women, ages 45-88, were evaluated. Fifteen patients (15%) received radiation boosts prior to the 2014 SSO guideline publication, (PRE). Eighty-five patients (85%) received radiation boosts post-guideline publication, (POST). Eight PRE cohort patients (53%) had <2mm margins. Two of these PRE patients (25%) had a re-excision. After controlling for other indications for boost, four (50%) PRE patients who received a boost had <2mm margins as their only risk factor. In the POST cohort, 38 (45%) patients had <2mm margins. Three of the POST patients (8%) received a re-excision, and 30 POST patients (79%) who received a boost had <2mm as their only risk factor. Comparisons between PRE and POST cohorts with <2mm margins on final pathology revealed a 25% re-excision rate PRE vs. an 8% re-excision rate POST (p=0.166), and in patients with a <2mm margin as the only risk factor for boost, our data revealed a 50% radiation boost rate PRE vs. a 79% radiation boost rate POST, (p=0.093) (Figure 1).

Conclusion

After evaluation of patients with radiation boost, our data raise the possibility that surgical re-excision rates have decreased and that there has been a synchronous rise in the delivery of radiation boost; however, due to limitations in our dataset, this association remains unclear. More data are needed to investigate the relationships between local control modalities in early breast cancer treatment.